



2023

BSMS 10 year component review

2013-2022



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INTRODUCTION

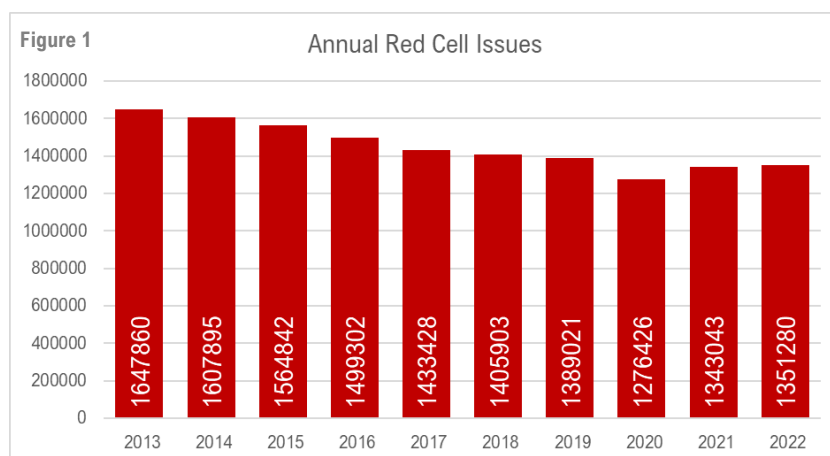
This document covers the period from 2013 - 2022, providing a 10 year lookback at annual issues and wastage trends for adult red cells, platelets, fresh frozen plasma and cryoprecipitate. Components used specifically in emergency situations, such as O D negative red cells and A D negative platelets are increasingly in demand due to their clinical versatility, therefore we also take a look at these components in detail. The impact of the Covid-19 pandemic and the following component shortages seen in 2022 have also been included in this report.

Managing blood component stock and minimising wastage is a responsibility all health professionals involved in the transfusion care pathway have to protect the blood supply chain, only by working together will we be able to sustain and protect our supply effectively for those who need it.

RED CELL ISSUES

Figure 1 shows the total **adult red cell** issues over a 10 year period 2013 to 2022, in which there has been a steady decline. This may be attributed to improved surgical techniques or the implementation of Patient Blood Management (PBM) strategies, for example, single unit transfusions or the use of transfusion alternatives.

Blood transfusion staff are more aware of appropriate stockholding practices and how this can effect component



wastage. Increased regulation regarding the maintenance and validation of all cold chain equipment has become more stringent over time hereby maintaining the quality of a component and also helping to reducing wastage. The introduction of 'electronic issue' has also enabled blood banks to hold less stock comfortably and safely.

A reduction in red cell issues in 2020 can also be observed, which may be a direct result of decreased hospital activity brought on by the COVID-19 pandemic. Issues in 2022 have since increased by

5% however they remain **3%** lower than the 2019 Pre-COVID year.

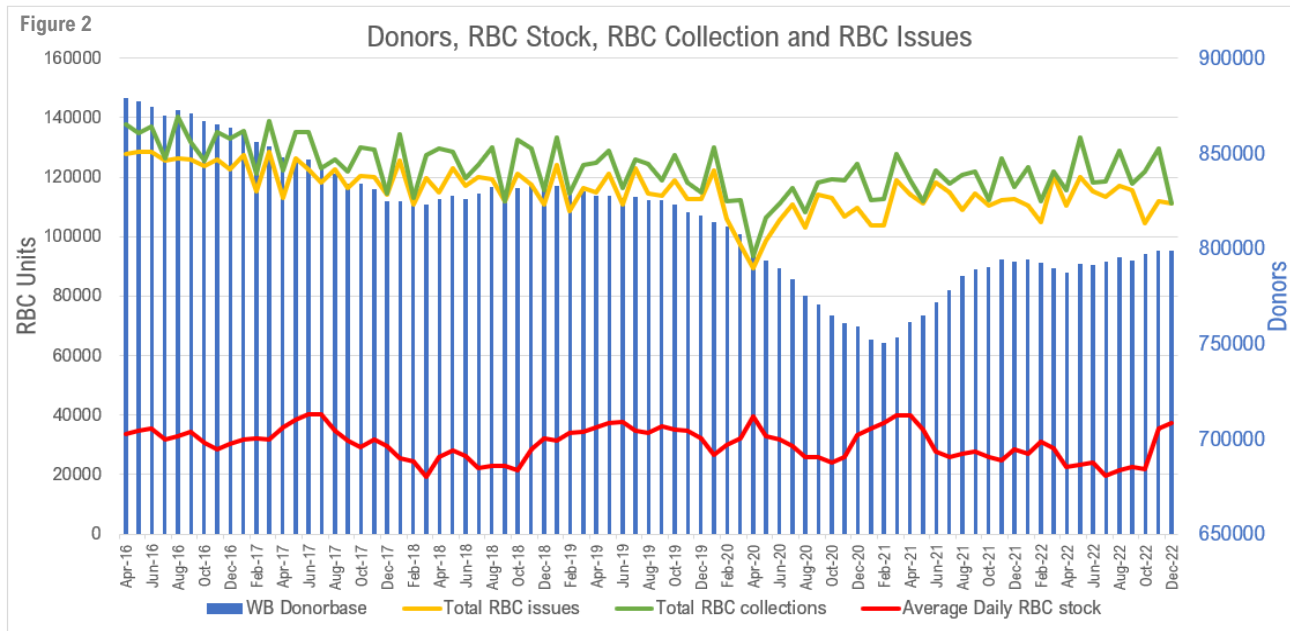
As each wave of the COVID-19 pandemic hit, hospital activity decreased further and red cells (and other components) were simply not required, resulting in increased wastage. Meanwhile in blood donation centres, many donor appointments were cancelled for various reasons, including the uncertainties regarding lockdown rules, an increased awareness of COVID symptoms thus preventing people from donating, as well as various other external logistical influences at the time such as the rail strikes affecting transportation routes to and from the centres.

Donor centres were modified to comply with social distancing rules, resulting in the removal of many donation chairs and reduced appointments. Staff sickness also placed extra strain upon donation teams as well as in many hospital settings. As fewer donations were collected, existing supplies became even more vulnerable.





Figure 2, shown below, highlights the reduction in whole blood donors (blue bars) and collections (green line) over time with a noticeable drop between February 2020 and February 2021. The average daily red cell stock (red line) shows an increase in April 2020, at the height of the COVID-19 Pandemic where activity in hospitals reduced significantly and components were not required. Although donor numbers have started to recover it is a slow process which has not reached pre-COVID levels.



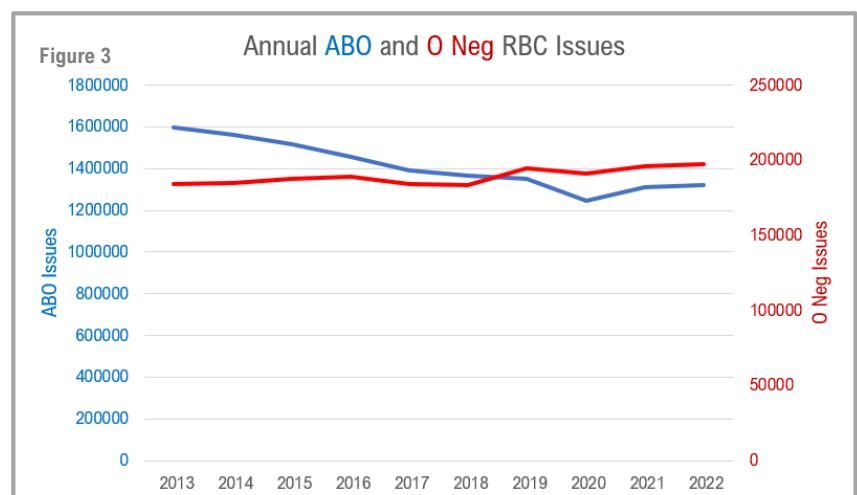
Red cell issues summary

- **Adult red cell total issues have decreased 2013-2022.**
- **2020 and the Covid-19 pandemic demonstrated the greatest reduction in RBC issues yet.**
- **In 2022 RBC issues were 3% lower than 2019 (pre-Covid-19 pandemic).**
- **RBC issues decrease is understood to be due to multiple factors; more appropriate stockholding, PBM measures, uptake of electronic issue and remote issue.**

O D NEGATIVE RED CELL FOCUS

Total demand for red cells has continued to decline over the past 10 years, however conversely the demand for **O D negative red cells** continues to rise in both absolute numbers and as a percentage of total red cell demand.

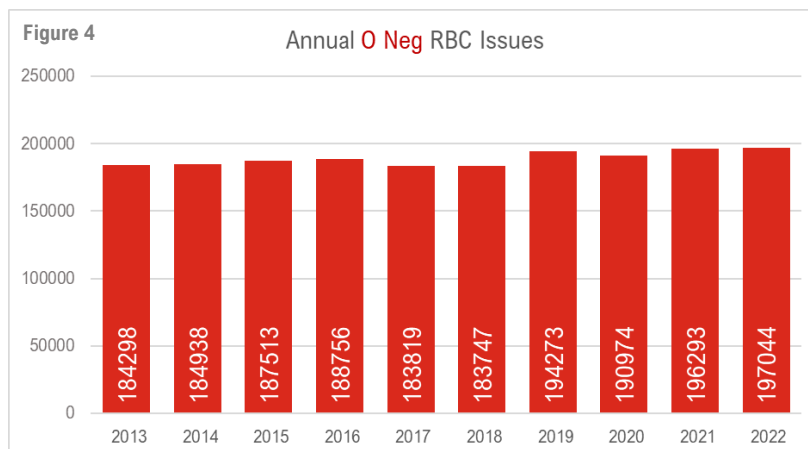
Figure 3 shows an **increase of 6.2%** in total annual issues of O D negative red cells between **2013 to 2022**. A steady decline in total ABO issues can also be observed.





The COVID-19 pandemic did not impact O D negative issues in the same way as other red cells blood groups, as there has also been a **1.4% increase** in issues between **2019 and 2022**.

Figure 4 shows the annual O D negative red cell issues from 2013 to 2022. There was a slight decrease in O D negative issues in 2017-18, which may be attributed to PBM initiatives as well as guidance from the British Society in Haematology (BSH) for the use of O D positive red cells in emergency situations for females aged over 50 years and males aged over 18 years, however a significant rise in annual issues of **5.4%** (2019-2022) can also be observed.



This increase may also be attributed to the Pathology Modernisation Programme and the implementation of 'Hub and Spoke models' across newly formed Pathology networks. This initiative also led to an increase in satellite and remote issue fridge installations, stocked primarily with O D negative red cells. The '2 sample rule' also introduced by BSH may have impacted upon O D Negative usage as this blood group was the unit of choice where only 1 patient sample exists.



Pre-hospital care initiatives, where O D negative red cells are transported and transfused externally prior to the patient arriving at hospital, have been supported by the Helicopter Emergency Medical Service (HEMS) and Blood on Board (BOB), an initiative that is saving lives. Pre-hospital care has also seen the introduction of the SWIFT trial - The **Study of Whole blood In Frontline Trauma**, which began in December 2022. This trial focuses on the potential of transfusing whole blood at the trauma scene, instead of individual red blood cells and plasma to hopefully reduce the number of deaths 24 hours after injury, and reduce the need for further large blood transfusions when

patient arrives at hospital. This may impact O D negative usage positively, as only 1 donation may be required, at the same time improving the outcome for the patient. There is however an alternative route that many hospitals are adopting for trauma and that is the utilisation of O D positive red cells in place of O D negative (for suitable patients), also a step towards preserving our O D negative stocks.

Demand for O D negative red cells is also strongly influenced by the demand for Ro red cells for many haemoglobinopathy patients. When Ro red cells are unavailable, O D negative red cells are provided as a safe substitute, and as demand continues to rise we must conserve our O D negative red cells elsewhere to ensure availability for patients with no alternatives.

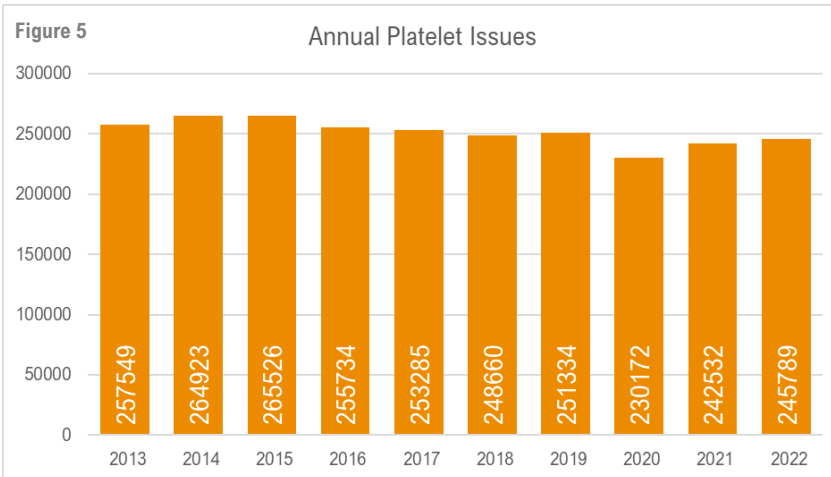
As this challenge continues it becomes increasingly imperative that we as a transfusion community maximise the use of all available O D negative red cells by challenging historical inventory practice, ensuring appropriate use, and minimising wastage.

O D Negative red cell summary

- **O D Negative red cell issues continue to increase despite overall ABO issues decreasing. The Covid-19 pandemic did not impact O D Negative issues in the same way as ABO issues.**
- **O D Negative issues have increased 6.2% 2013-2022.**
- **There are multiple factors influencing O D Negative issues such as uptake of pre-hospital care initiatives, hub and spoke pathology networks and demand for Ro units.**

COMPONENT ISSUES

Focusing on other component issues over the same time period gives us an indication of trends as well as the impact that COVID-19 pandemic had. All data provided includes **adult** only components.



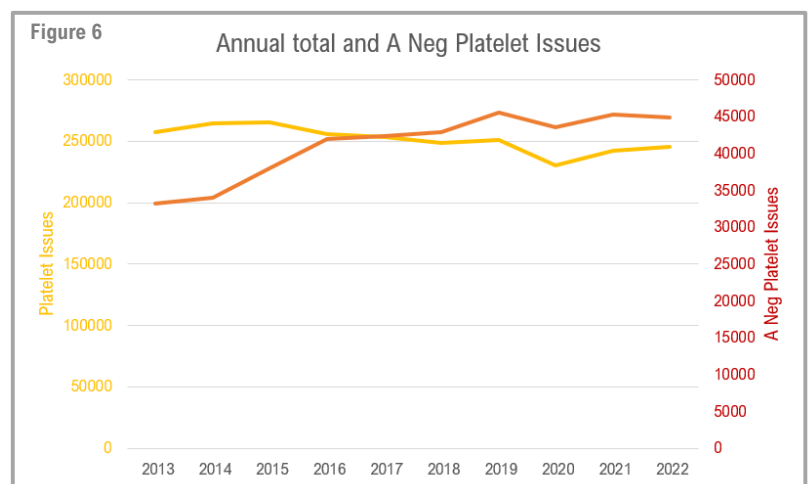
Platelet issues shown in figure 5 have reduced slightly over time, perhaps due to improved surgical techniques or rapid issue of components as part of a standardised approach to treating major haemorrhage, for example.

Platelet issues also demonstrate an **8.5%** decline (2019-2020), which may also be attributed to reduced surgical inactivity during the COVID-19 pandemic, together with a reported reduction in routine hospital appointments.

Although total platelet issues have reduced since 2014, the demand for A D negative platelets continues to rise. Figure 6 shows the **24.4%** increase in A D negative issues since **2013 to 2022**.

Group A D negative platelets are often considered the ‘universal platelet’ held as stock for emergency situations, Hospital demand continues to rise, however only **7%** of our donor population is A D negative, placing a strain on blood services to continually supply these components.

The BSMS inventory practice survey of 2021 focused on platelet stockholding practices within hospitals and highlighted A D negative platelets as a vulnerable component. [The report](#) provided recommendations for hospitals to consider, including the use of A D positive platelets where clinically possible.



Platelet summary

- Platelet issues show a reduced trend over time, the largest annual reduction was 8.5% (2019-2020).
- A D Negative platelet issues are increasing—24.4% increase (2013-2022).
- A D Negative platelet demand is driven by desire for hospitals to hold suitable components for the patient demand whilst limiting wastage.
- There has been increased stockholding of platelets, patients presenting later and often in critical condition, often requiring blood component support and the standardisation of major haemorrhage protocols.

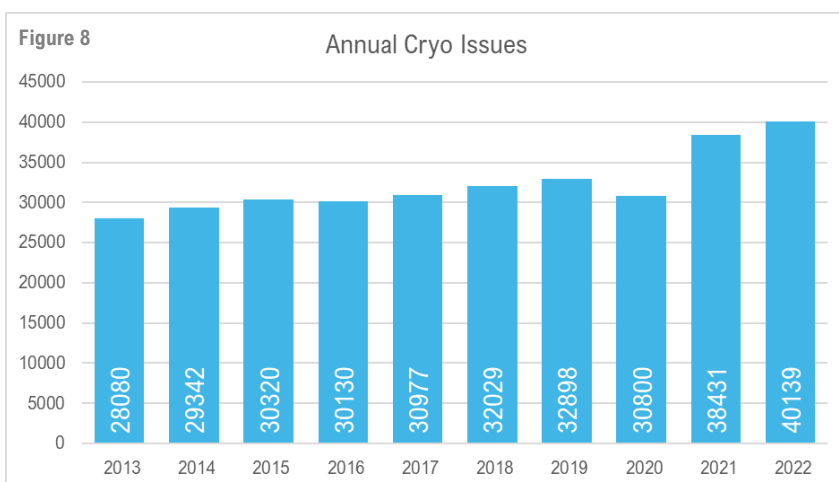
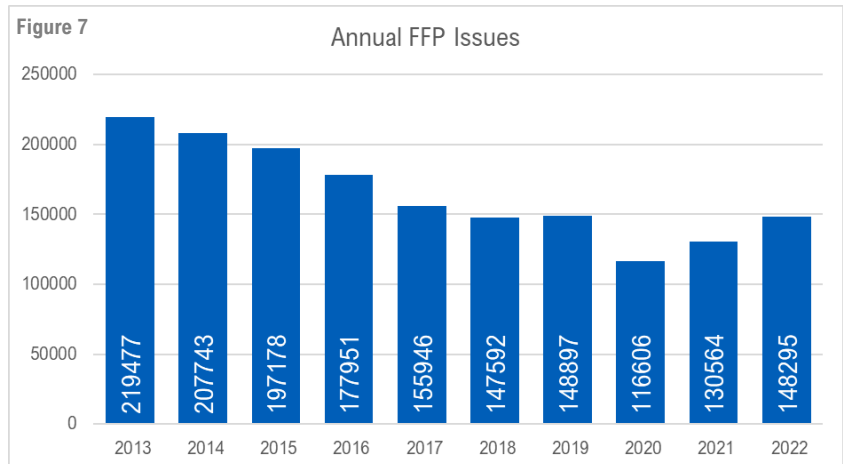


Fresh Frozen Plasma (FFP) issues, demonstrated in figure 7, have dropped significantly over the 10 year period, with 2020 having the fewest issues to hospitals.

Various factors may have influenced the decline in FFP issues, including the introduction of prothrombin complex concentrates for warfarin reversal, novel anticoagulants which no longer require reversal with blood component and the ability to use thawed FFP for up to 5 days (as per BSH guidelines).

There has however been a **21.4%** increase in issues between **2020 and 2022**, as activity resumes.

FFP is also utilised in pre-hospital care initiatives such as HEMS, replacing freeze dried plasma in some regions. The COVID-19 pandemic was reported to have had a negative impact on patient conditions, with patients presenting at a more advanced state in their disease due to delays in many appointments, therefore subsequently requiring additional components during and after surgery.



Cryoprecipitate issues shown in figure 8 have increased year on year with a **4.3%** increase from **2021 to 2022** and a total increase of **30%** between **2013 and 2022**.

This increase could be due sicker patients receiving delayed treatment post COVID-19, similar to FFP, therefore requiring additional component support during or after surgery or perhaps it is due to the increased availability of point of care clot analysis systems such as

thromboelastogram and thromboelastography, both which recognise the requirement for specific blood components earlier in surgery.

As the trend shows an increase we must monitor our stocks and ensure appropriate use.

FFP and Cryoprecipitate summary

- FFP issues showed an initial decrease (2013-2020), however issues are increasing again — a 21.4% increase was seen from 2020-2022.
- A continuous annual increase seen in cryoprecipitate issues of 30% between 2013-2022.
- Patients presenting later and in poorer condition, standardisation of major haemorrhage protocols, pre-thawing FFP for rapid issue or pre-hospital emergency care initiatives and point of care coagulation testing has increased the demand for frozen components.



COMPONENT SUMMARY FOR 2022/23

Figure 9 shows the total number of units issued for all red cells, O D negative red cells, adult platelets, FFP and cryoprecipitate and A D negative platelets in **April 2021/March 2022** compared to the total issues for the following year **April 2022/March 2023**. The total change in issues has been calculated to identify the increase or decrease.

Overall, the annual change has been minimal, with the largest increase seen in adult FFP at **6.19%**, totalling 9193 extra units issued in 2022/23 compared to the previous year. All component issues, excluding pooled cryoprecipitate have increased, whereas cryoprecipitate issues have decreased by **0.19%**.

As services recover from the pandemic and patient waiting lists are addressed this may continue to rise.

Figure 9

Component type	Total issues 2022/23	Total issues 2021/22	Issue change	% Annual change	Increase/decrease
Red Cells	1,354,754	1,352,337	+ 2,417	+ 0.12%	↑
O neg RBC	197,713	196,665	+ 1,048	+ 0.53%	↑
Platelets	247,416	242,721	+ 4,695	+ 1.89%	↑
A neg Platelets	45,374	44,848	+ 526	+ 1.16	↑
Adult FFP	148,424	139,231	+ 9,193	+ 6.19%	↑
Pooled Cryo	40,166	40,242	- 76	- 0.19%	↓

NATIONAL STOCKHOLDING AND BLOOD SHORTAGE

Blood services strive to maintain >6 days worth of red cell stock, keeping stock levels in what is referred to as 'Green' status. If component stocks decrease to ≤2 days worth then an 'Amber' alert would be triggered and if stocks reduced further to critical levels, at ≤1 day, a 'Red' alert would be triggered, both scenarios prompting the activation of emergency blood management plans.

As UK stocks continued to diminish during 2022, a new phase known as 'Pre-Amber' was introduced in August 2022 by NHSBT. This phase called upon hospitals to review their stock levels and further promote PBM strategies, to prevent an Amber alert from occurring.

BSMS was called upon to offer support to hospitals during this period, which included a review of stockholding, including hospital Issuable Stock Index (ISI) figures.



BSMS ISSUABLE STOCK INDEX (ISI) REVIEWS

To ensure hospitals are holding an appropriate amount of red cell stock we utilise the Issuable Stock Index (ISI). This value is calculated by dividing the total amount of stock held in the inventory by the nominal stock value (1 days worth of stock that is expected to be used).

BSMS targets for ISI values, shown in figure 10, have been developed for each user category within VANESA as a guide for hospitals to follow and use as a key performance indicator. If overstocking is evident, the ISI value will be higher than the target value. Increased ISI values have shown to correlate with increased wastage, which would be even more detrimental to the already threatened supply chain.

During the Pre-amber alert, BSMS participants who readily supplied red cell stock data to the scheme received individual analysis and advice utilising the ISI value to recommend where stock reductions may be possible if clinically safe to do so. Unfortunately, despite concerted efforts from many hospitals to reduce stocks, NHSBT declared an Amber alert for red cells on October 11th 2022.

Figure 10

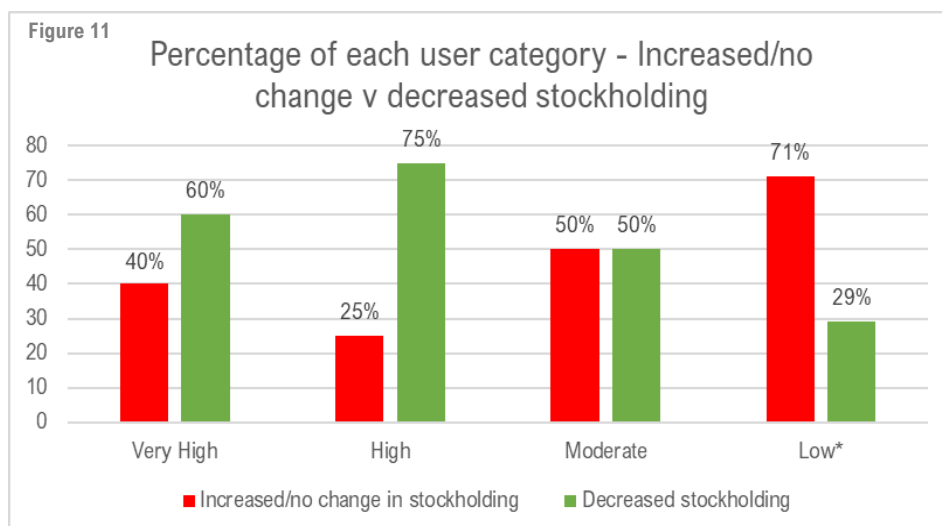
User Category	O+	O-	A+	A-	B+	B-	AB+	AB-
Very High	3-4	4-5	3-4	4-5	4-5	4-5	n/a	n/a
High	4-5	5-6	4-5	5-6	5-6	5-6	n/a	n/a
Moderate	4-6	5-7	4-6	5-7	5-7	5-7	n/a	n/a
Low	6-8	7-9	6-8	7-9	7-9	7-9	n/a	n/a
Very Low	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AMBER ALERT - What impact did it have on red cell stocks?

To assess the impact of declaring the Amber alert, the average stock level from 2021 was compared to the average stock level of the 4 weeks from the 11th October 2022. There were some limitations to the data including the variability in daily stock levels and gaps in the data where no levels had been entered, mainly at weekends. In addition, we compared the previous 12 months average, however a reduction in stock holding following the COVID -19 Pandemic may have already taken place.

Figure 11 shows the proportion of hospitals in each user category that either decreased or increased/demonstrated no change in RBC stockholding following the Amber alert being declared.

The majority of both **Very High** and **High** BSMS users decreased their red cell stocks (**60%** and **75%**), however only **50%** of **Moderate** users and **29%** of the **Low** users demonstrated a reduction in RBC stock during this alert period.



**Hospitals categorised within the Very Low user group were not included in this review due to low stock levels.*

Stockholding figures

Using the same method to analyse stockholding, figure 12 shows the total increase, decrease and net change in red cell stockholding for each user category during the Amber alert.

The **Very High** user category showed a net change of **-141** units.

High users **-176** units.

Moderate users **-61**.

Low users had a net change of **+50** units.

Overall, there was a **total reduction** in daily red cell stock holding within the UK by **328 units**.

Wastage during the Amber alert period

Hospital wastage figures were analysed to identify if there had been any significant changes in red cell wastage during each of the alert periods.

BSMS compared the %WAPI - **wastage as a percentage of net issues** during the Green phase to the Pre-amber phase (October 2012 - August 2022) and then the Pre-amber phase to the Amber phase (September 2022 - October 11th). This did not include average stock age of the red cells issued from NHSBT and did not include the BSMS Very Low user hospitals.

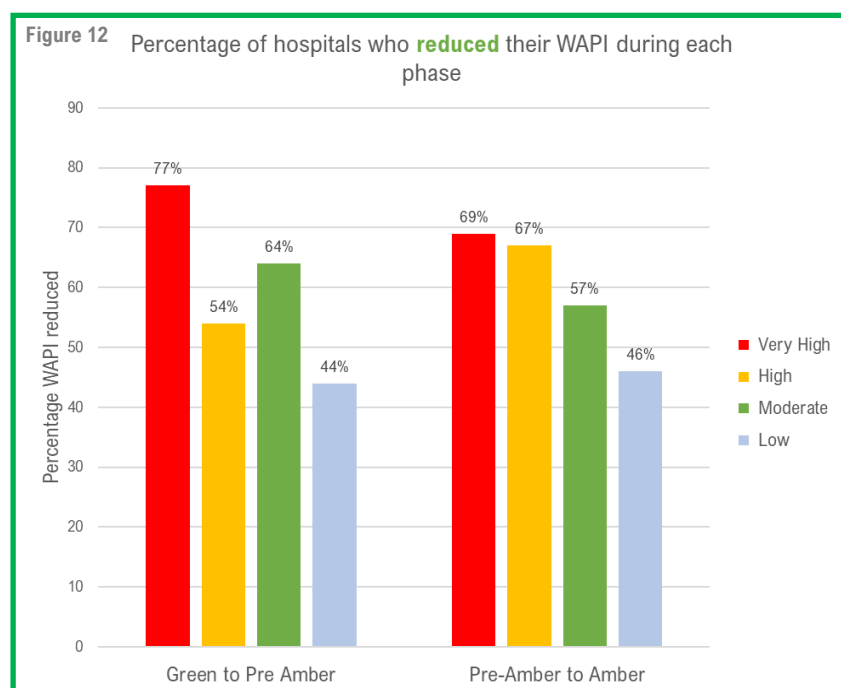
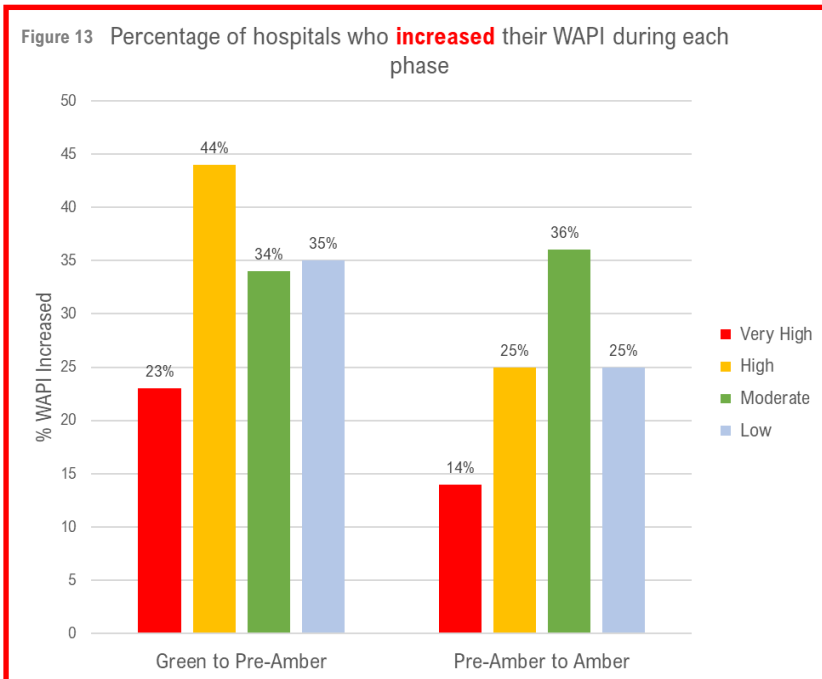


Figure 12 shows the total percentage of hospitals within each user group who **reduced** their %WAPI during the Green to Pre-amber phase and the Pre-amber to Amber phase.

- %WAPI was **reduced** on average by **60%** of hospitals during the Green to Pre-amber phase.
- %WAPI was **further reduced** on average by **60%** of hospitals during the Pre-amber to Amber phase.
- The Very high user groups reduced their %WAPI considerably, with a **77%** reduction in the green to Pre-amber phase and then a further **69%** reduction from the Pre-amber to Amber phase.



Figure 13 shows the total percentage of hospitals within each user group who **increased** their %WAPI during the Green to Pre-amber phase and the Pre-amber to Amber phase.



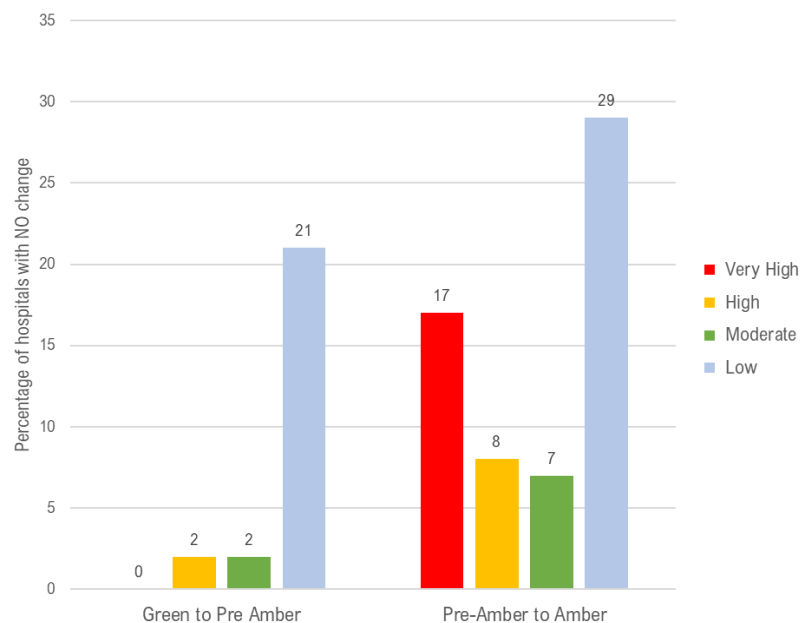
- %WAPI was increased by an average of **34%** of hospitals during the Green to Pre-amber phase.
- %WAPI was also further increased by an average of **25%** of hospitals during the Pre-amber to Amber phase.

It is important to note that many services were moved and prioritised during this time, which could have impacted upon sites blood provision.

Figure 14 shows the total percentage of hospitals within each user group who **had no change** their %WAPI during the Green to Pre-amber phase and the Pre-amber to Amber phase.

- There was on average no change seen in %WAPI in **6%** of hospitals during the Green to Pre-amber phase.
- There was also on average no change seen in %WAPI in **15%** of hospitals during the Pre-amber to Amber phase.

Figure 14 Percentage of hospitals who had **NO CHANGE** in WAPI during each phase

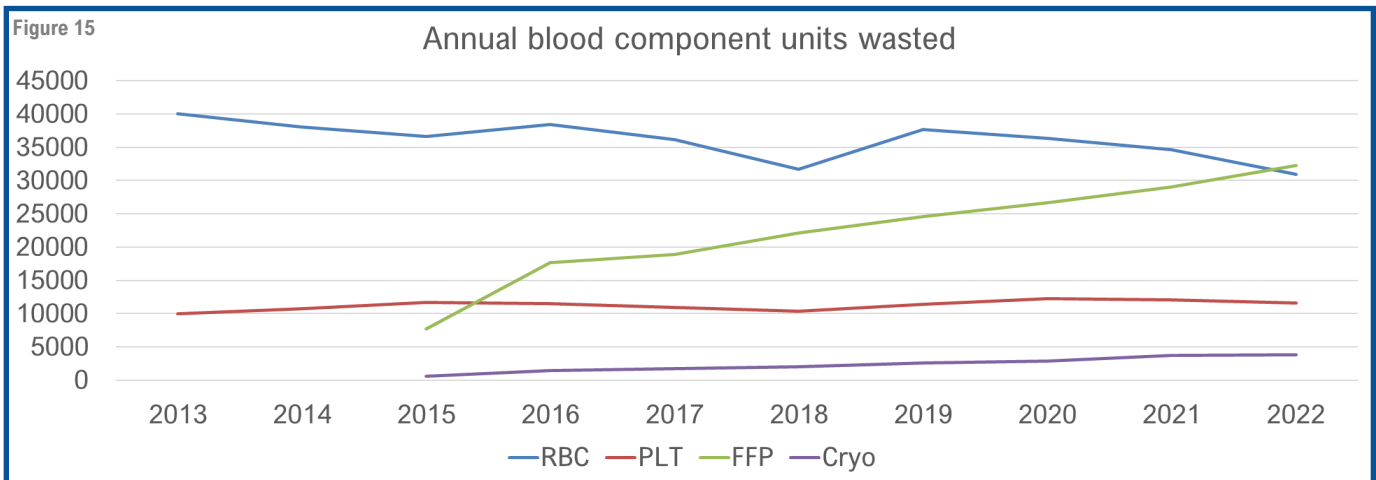


Stockholding and wastage summary during the shortage alerts

- Overall there was a reduction in red cell stockholding of 328 units daily on average.
- Data also shows that overall there was a reduction in %WAPI and units wasted during both the Pre-amber and Amber phase when compared to the Green phase prior to the shortages.
- Blood banks responded positively to these alerts and blood service recommendations, reducing stock levels and demand, an effort recognised and appreciated.

WASTAGE TRENDS

Wastage figures for RBC and PLT (2013–2022) and FFP and Cryo (2015–2022) are shown in figure 15 and demonstrate a changing picture for all components. These figures are based upon wastage data entered into VANESA, therefore we must assume that there is further wastage that has not been submitted. It appears that red cell wastage is reducing however FFP wastage has overtaken red cell wastage for the first time since 2021.



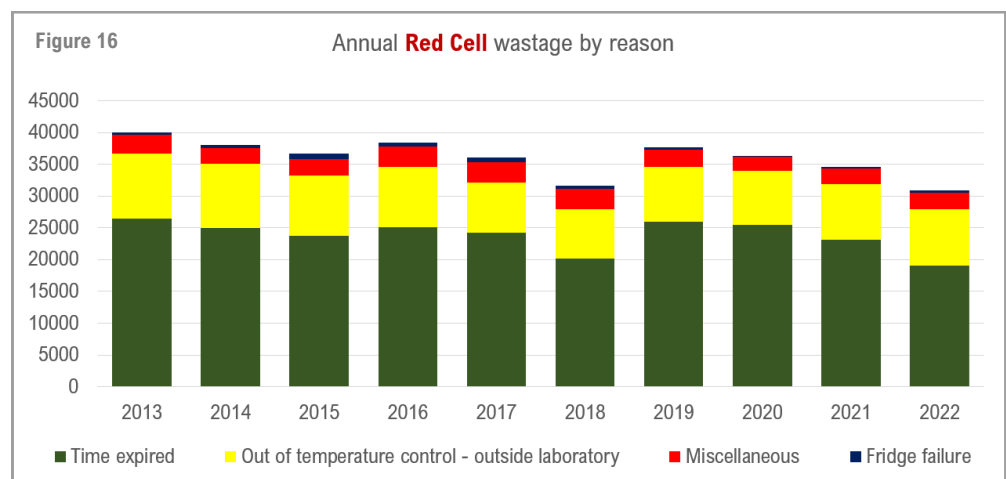
Wastage summary

- **Red cell wastage** has reduced since 2013 and was at its lowest in 2022 at just over 30,000 annually. This is a huge achievement and the reasons for these changes have been multifactorial.
- **Platelet wastage** has remained steady over the 10 years with no evidence of any significant change.
- **Fresh Frozen Plasma** wastage has continued to rise and has overtaken red cells for the first time. This could be due to increased FFP usage and therefore wastage, or an increase in FFP wastage reporting.
- **Cryoprecipitate wastage** has increased steadily, also perhaps due to increased reporting.

WASTAGE BY REASON

Figure 16 shows the annual **red cell wastage** which has reduced over the last 10 year period.

Reasons for wastage remain fairly stable with the largest portion attributed to **time expired** wastage, followed by **out of temperature control**.



Platelet wastage, displayed in figure 17, shows some fluctuation, with a steady decline evident from 2016 to 2018, increasing again from 2019 onwards.

The data also shows that 2020 recorded the highest wastage, with medically ordered not used (MONU) and stock platelets, time expired (Stk Plt—TIMEX) as the main contributors. This could be attributed to the COVID-19 pandemic, where many patients who regularly received platelet transfusions (eg: haematology patients) were either unable to attend their appointment unexpectedly due to COVID symptoms and/or infection or did not feel safe to come into hospitals for treatment and therefore did not receive their platelets, ultimately this led to an increase in wastage. Platelets were also declared as a Pre-Amber alert, followed by Amber alert for some time following the initial shortage alerts. As stocks recover slowly, platelets, particularly A D negative platelets remain vulnerable and hospitals are still urged to conserve where possible and transfuse where appropriate.

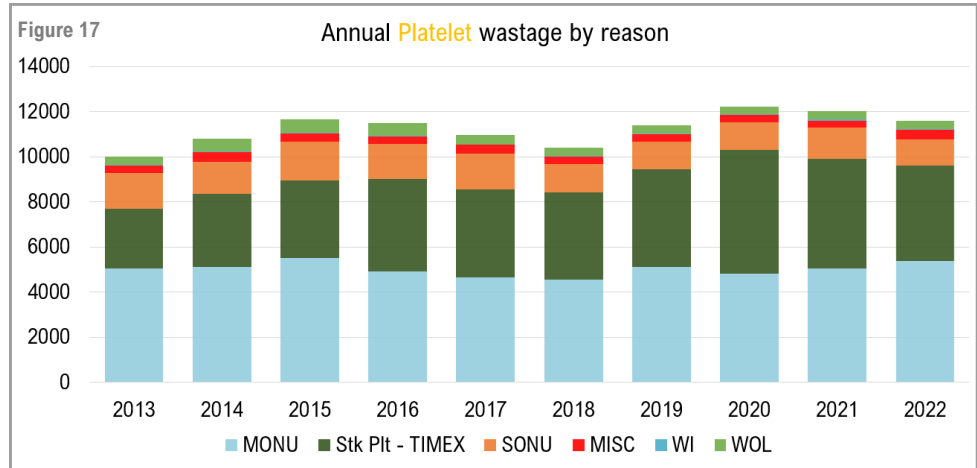
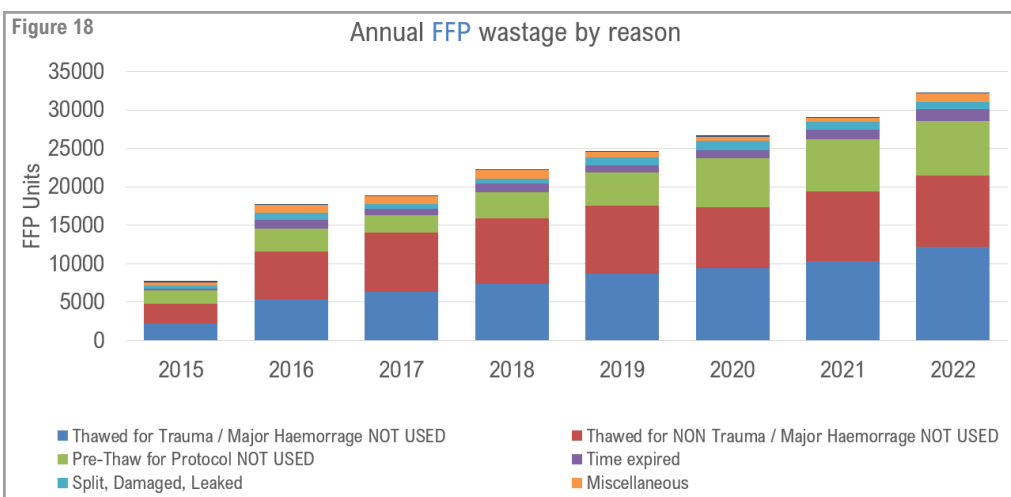


Figure 18 shows **FFP wastage** from 2015 to 2022. There is a steady increased over time with 2022 being the largest so far, however we also know that wastage reporting into VANESA has also increased annually.



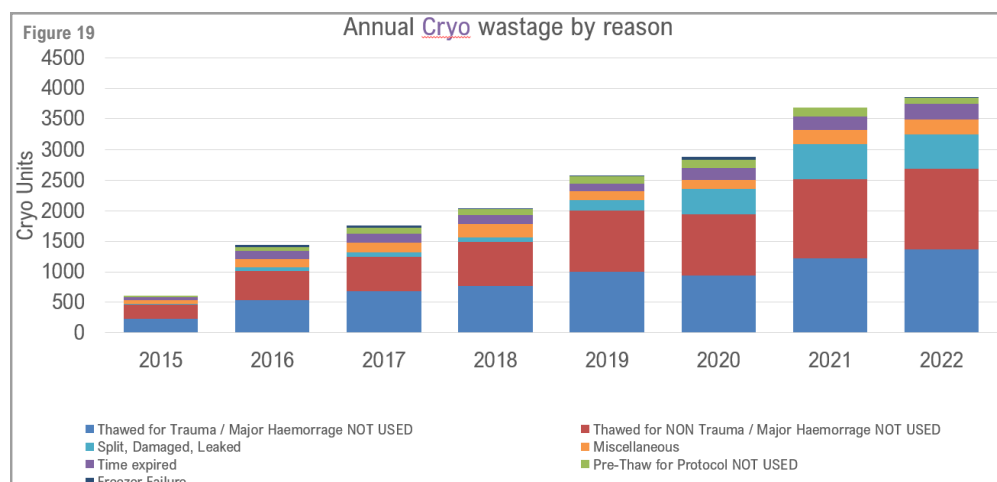
The main reasons for wastage appears to be thawed for major haemorrhage but not used and thawed for non-trauma and not used.

These categories correlate with the increased deployment of management of major haemorrhage protocols, hereby defrosting FFP immediately to prevent delay. We know that

many of these defrosted components are not transfused and are ultimately wasted. British Standards in Haematology (BSH) guidance has since promoted the use of defrosted FFP for up to 5 days for use in bleeding patients, potentially reducing wastage. This may be dependant on the hospitals ability to utilise this component for appropriate patients.



Cryoprecipitate wastage, displayed in figure 19, has also increased since 2015, however this could potentially be due to increased reporting in VANESA.



The main reasons for wastage are thawed for major haemorrhage but not used and thawed for non-trauma and not used.

There also appears to be an increase in 'split, damaged, leaked'.

Total wastage change from 2021/22 to 2022/23

Figure 20 shows that there has been an **overall reduction in wastage** by **6.1%** from 2021/22 to 2022/23, with the largest reduction seen in red cells at **12.8%**. Platelet wastage has also reduced by **3.2%**. These figures may be attributed to reduced stockholding as a direct result of the Pre-Amber and Amber alerts. There has been an increase in frozen component wastage, largely attributed to 'thawed for major haemorrhage - not used', a category which may have seen an increase due to sicker patients, post COVID, requiring additional component support. There has also been a increase in FFP being carried for HEMS and BOBS for pre-hospital care, which may be contributing to wastage.

Figure 20

Component type	Total wastage 2022/23	Total wastage 2021/22	Wastage change	% Annual change	Increase/decrease
Red Cells (RBC)	30,193	34,628	- 4,435	- 12.8%	↓
Platelets	11,758	12,146	- 388	- 3.2%	↓
Adult FFP	31,719	30,747	+ 972	+ 3.1%	↑
Pooled Cryo	3977	3710	+ 267	+ 6.8%	↑



VANESA data reporting completeness

VANESA component data entered by hospitals is an integral part of the Blood Stocks Management Scheme operations and daily function. Daily 'issues' data for each component to each site is captured electronically from the blood services and fed directly into VANESA. Other types of data including stock level, wastage, movement of components and transfused data are supplied voluntarily by the BSMS participants. This data is manually entered at the hospital site which can lead to gaps in data, input error and has the potential to compromise data integrity.

Data entry is monitored by BSMS and is termed 'completeness' data. BSMS's aim is to achieve 100% compliance with manual data submission which is;

- ≥ 15 entries of daily RBC data/month
- ≥ 1 entry of component wastage data/month (which includes a positive entry of 'zero wastage')

In October 2022 increased functionality was added to VANESA to enable capture of daily stock levels for platelet, FFP and cryo, there is currently no minimum requirement for data submission for these fields. There are no minimum requirements for movements or optional transfused data.

We audited the manually entered VANESA data for 2019-2022 to determine the rate of completeness against the minimum requirements for data entry and to determine if hospital data submission had changed over the 4 years.

VANESA data entry completeness data

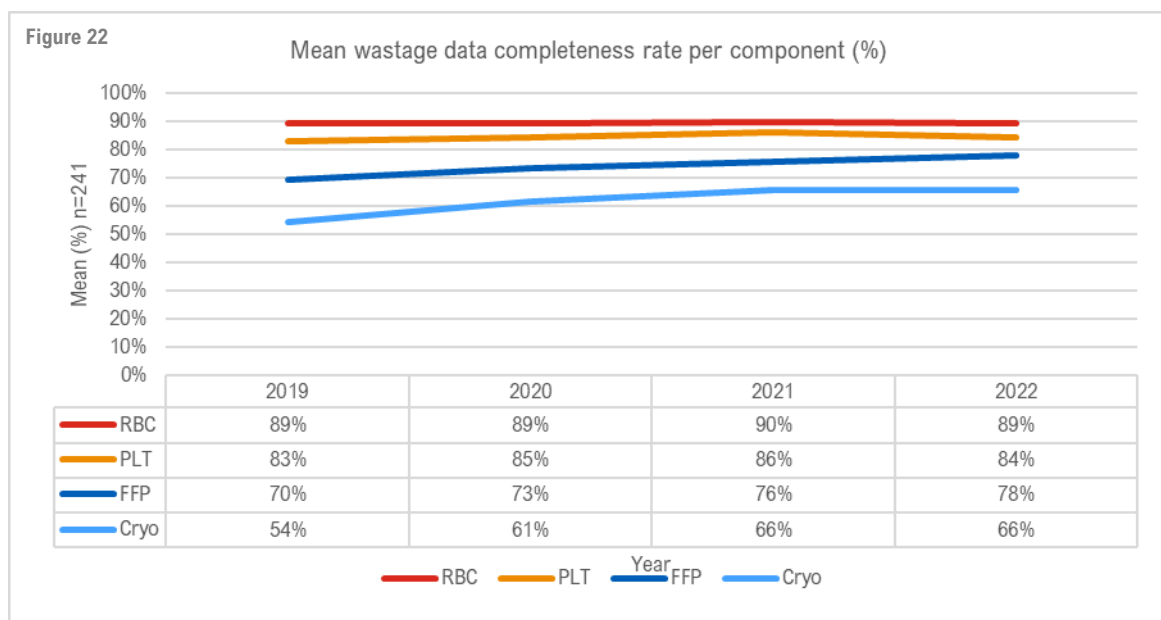
Figure 21 summarises data submission rates for 2022.

Figure 21

2022 (n=241)	RBC	PLT	FFP	Cryo
Mean wastage submission rate (%)	89%	84%	78%	66%
Hospitals with 100% wastage entry	183 (76%)	162 (67%)	141 (59%)	93 (39%)
Mean stock submission rate (%)	94%	-	-	-
Hospitals with 100% stock entry	204 (85%)	-	-	-

Annual completeness data (2019-2022)

There has been minimal change in mean RBC and PLT wastage reporting, but an improvement in mean FFP and cryo wastage reporting from 2019-2022, as seen in figure 22.



VANESA Data Entry Compliance (2019-2022)

Hospitals entering ≥ 1 wastage entry per month for each component has improved for FFP and cryo, as shown in figure 23. There has been consistency for RBC and PLT data entry.

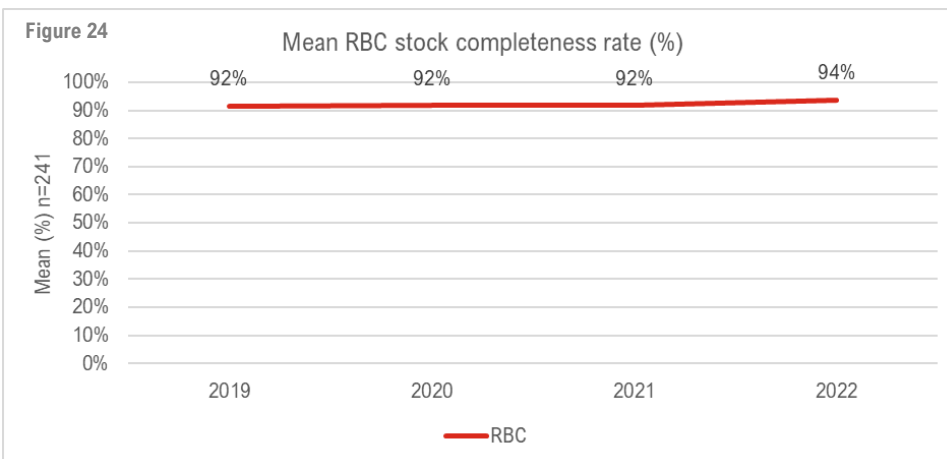
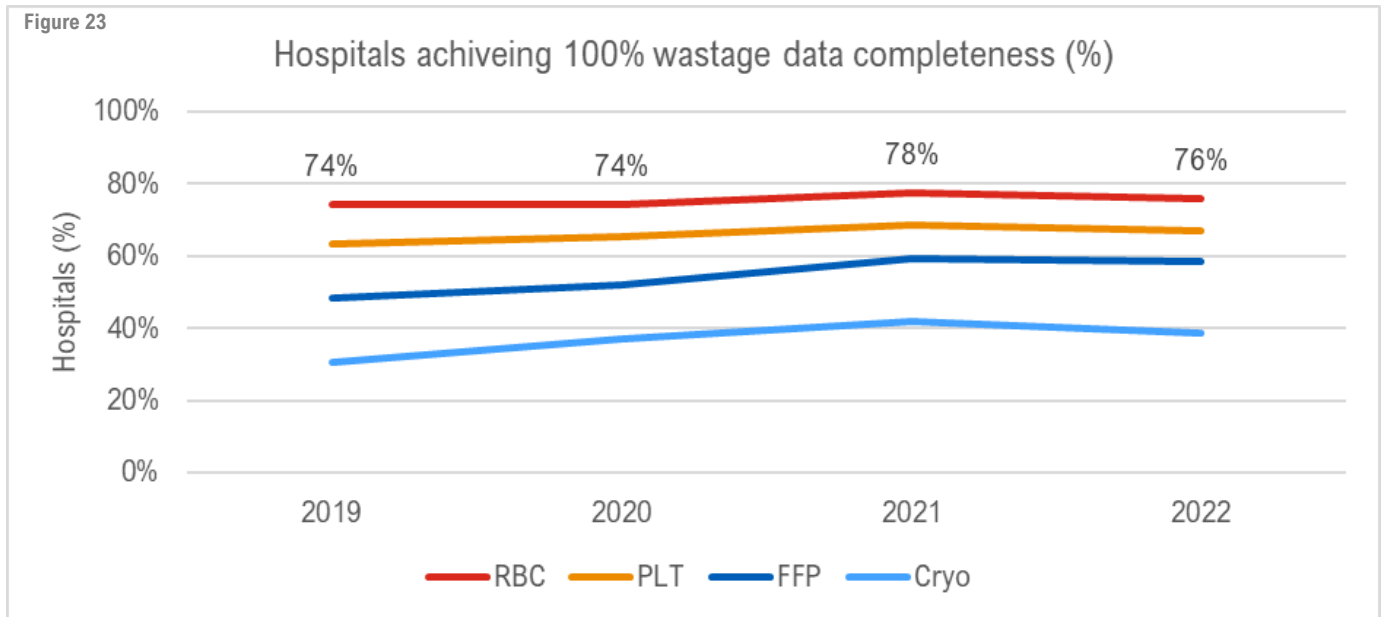
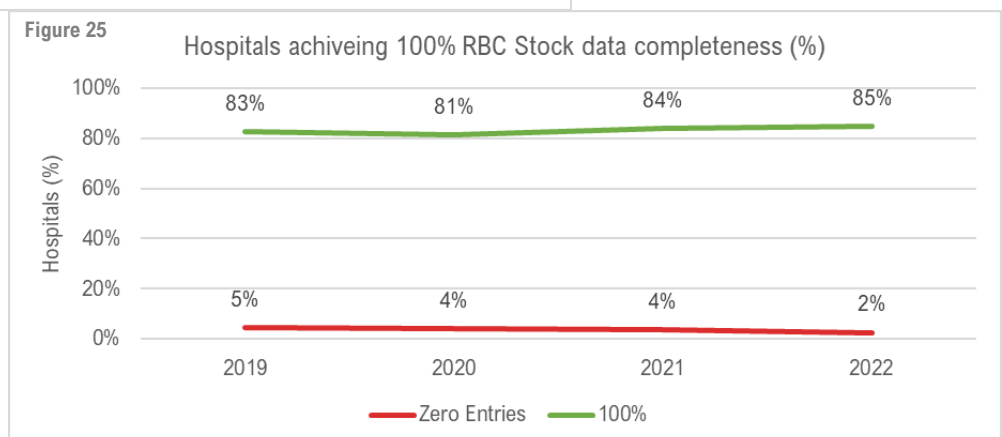


Figure 24 shows that hospitals mean stock entry rate for RBC stock has maintained consistency.

Hospitals who have complete RBC stock entry (≥ 15 entries per month) has improved, show in figure 25. Those hospitals that do not enter any stock data have also decreased, with only 6/241 (2%) hospitals not entering any RBC stock data in 2022.



Data Completeness summary

- VANESA data entry rate has not changed greatly in the past 4 years, in 2022 85% (204/241) hospitals achieved 100% RBC stock entry and 76% (183/241) achieved 100% RBC wastage data entry.
- One limitation to BSMS data collection is that because it is entered manually some submissions are missed.
- BSMS continues to promote accurate and consistent data entry as inventory management best practice.

BEST PRACTICE PAPER—INVENTORY MANAGEMENT



This document (published January 2022) focuses on inventory management of blood components within the hospital blood transfusion laboratory setting, provides recommendations to the user for determining appropriate stock levels, reducing wastage and ultimately achieving best practice.

The guide is available on the [BSMS website](#) and includes an audit tool for hospitals to use. Sections within the document include setting optimal stock levels, managing ordering practices, promoting best practice, managing the movement and storage of components, emergency planning and conservation. There is also a section dedicated to key performance indicators (KPIs) and benchmarking.

DEVELOPMENT OF KEY PERFORMANCE INDICATORS

KPIs discussed within the best practice paper include the **issuable stock index (ISI)**, used to identify the days of red cell stock held in the blood bank and the **wastage as percentage of issues (WAPI)** which provides a percentage of the total stock wasted in relation to total component issues over a designated period, regardless of hospital size or monthly variation. A KPI target WAPI has been determined for both red cell and platelet wastage, for each user category within VANESA. These targets are evidence-based and were developed using the data provided to BSMS by participants. The KPIs are designed to give each user group an achievable target, where the results can then be used to compare or monitor performance and identify opportunities for improvement.

UPDATE TO BSMS USER GROUP CATEGORIES

BSMS red blood cell and platelet user categories were updated in April 2022 to reflect current component issues to hospitals. The method uses GROSS issues (units issued to hospitals by the appropriate blood service) and NET issues (gross issues but also factoring in any inter-hospital component movements) over the past 5 years. This update to categorisation supports effective hospital benchmarking whilst considering the variable and ever-changing service configurations of hospitals. Further detail on these categories can be found on the [BSMS website](#).

MONTHLY COMPONENT REPORTS

BSMS collects stock, issues and wastage data for red cells, platelet, fresh frozen plasma (FFP) and cryoprecipitate, both from blood services and hospitals to provide the participating hospitals with a monthly component report summarising component management activity. This report has been updated and replaces several reports previously issued, including the Patient Blood Management (PBM) highlight report. The goal is to provide each hospital with key metrics and data analysis to assist with local and cluster benchmarking, when compared with red cell and platelet user groups. The report consists of a red cell summary report, O Negative focused report, platelet summary report and a frozen component overview and has been well received. An example can be found on the [BSMS website](#).

SHORTAGE ALERT DOCUMENTATION

This [document](#) was produced to assist hospitals with their inventory management practices during NHSBT blood shortages alerts in December 2022. The support document summarises the key best practice advice and is designed to provide inventory management tips, encourage best practice such as reviewing stock levels and monitoring wastage, during each shortage alert phase and for each blood component. There is also guidance and insights for reviewing the monthly component report to see where the data indicates improvements could be made.

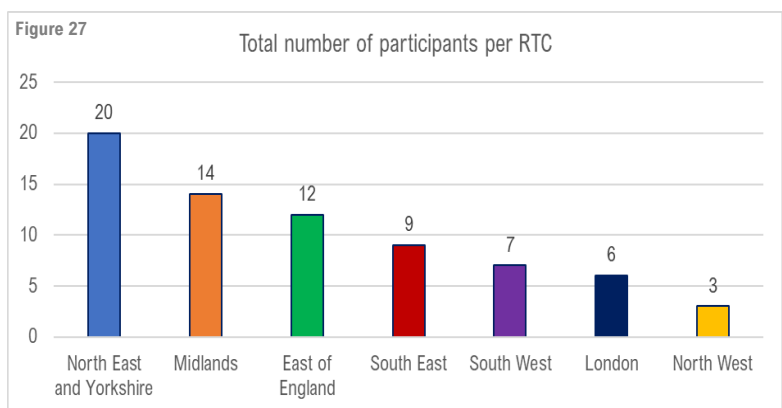
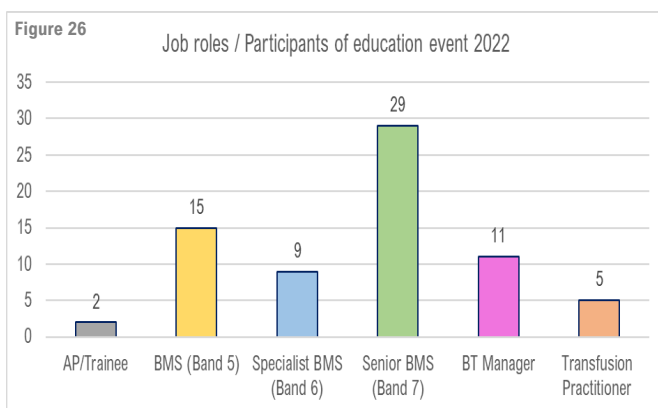
NEWSLETTER

Our first newsletter for BSMS participants was released in 2022 designed to communicate directly with our customers. The newsletters contain important inventory management discussion topics, updates, news, upcoming events, education day updates and more. The newsletters can be found on the [BSMS website](#).

EDUCATION EVENT

BSMS began hosting an online education event in 2022 'An Introduction to Smarter Inventory Management' aimed at providing insights into inventory management for healthcare professionals. The aim was to limit participant numbers to approximately 6 people and analyse their data in detail. There were 5 dates released initially, however there was an influx of requests prompting us provide an additional 4 extra dates within that first year and increase the participant number for each date. In 2022 there have been a total of 71 participants attend the day from various hospital sites within the UK (see the job grades and regional data below). Further dates are planned for 2023.

To monitor the success of the event and to improve the content, we gathered feedback from the participants, which we then considered and included in the next event. Participants also completed a questionnaire before and after the event regarding their confidence and knowledge in BSMS, VANESA and inventory management to provide evidence of improvement, or areas to focus on, the results can be found below (fig. 26 and fig. 27). The event is supported by the PBM Team, who provide a presentation on Patient Blood Management, which has also been well received.



The event has grown and developed and now includes a full demonstration of VANESA and a comprehensive breakdown of the monthly component reports. We open each event up to 16 participants, where there are scenarios to work through as well as interactive sessions throughout. Participants are also asked to grade the event out of 5 stars, figure 28 shows the pre-event and post event confidence scores and the overall grade awarded to BSMS by the participants for the day.

Pre questionnaire average scores, shown in figure 29, were **3.3/5.0**, however after the event this increases to an average score of **4.5/5.0** with many encouraging comments regarding the content and delivery. The overall star rating we received was **4.8/5.0**.

6 further events are scheduled for 2023.

Figure 28

Session	Date (2022)	Pre score average (0-5)	Post score average (0-5)	Star rating (0-5)
1	21 st Feb 2022	4.1	4.8	5.0
2	4 th April 2022	3.3	4.6	4.8
3	16 th June 2022	3.4	4.5	4.6
4	14 th Sept 2022	3.2	4.5	4.8
5	29 th Sept 2022	3.6	4.6	4.5
6	6 th Oct 2022	3.2	4.3	5.0
7	2 nd Nov 2022	3.2	4.5	4.9
8	24 th Nov 2022	3.1	4.6	5.0
9	1 st Dec 2022	2.9	4.5	4.7
Total average		3.3	4.5	4.8

BSMS SUPPORT

BSMS continues to provide support at various national and regional meetings, not only to present BSMS data but to provide inventory stock management education and recommendations. Ad-hoc requests for data and guidance from internal and external stakeholders and customers are also managed effectively by the team throughout the year.

CONTACT US



For any advice or guidance contact Blood Stocks Management Scheme at BSMS@nhsbt.nhs.uk