

HOSPITAL USER EXPERIENCE: HIGH SPEC. ONEG RC'S & ANEG PLT'S

David Johnson

**Blood Transfusion Laboratory Manager
St Mary's Hospital**

ST MARY'S HOSPITAL

- Part of North West London Pathology Services, hosted by Imperial College Healthcare NHS Trust.
- We are 1 of the 4 London Trauma Centres.
- Home to a Paediatric BMT Centre & 2 Maternity Units.
- We receive approximately 45,000 G&S's per annum.



HISTORIC WASTAGE OVER 12 MONTHS.

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Jul-17	63	7.5%	21	16.9%	18	13.7%	9	37.5%
Jun-17	91	12.4%	11	8.6%	31	23.7%	6	25.0%
May-17	66	8.6%	17	18.5%	3	1.7%	0	0.0%
Apr-17	74	10.3%	41	39.4%	29	15.4%	8	30.8%
Mar-17	46	5.6%	20	15.3%	16	10.1%	7	35.0%
Feb-17	51	6.3%	25	24.3%	18	14.0%	8	42.1%
Jan-17	58	6.5%	9	6.0%	9	4.5%	2	9.5%
Dec-16	36	4.8%	8	8.4%	14	10.6%	5	19.2%
Nov-16	88	10.2%	17	13.2%	15	8.9%	3	37.5%
Oct-16	46	5.1%	3	2.9%	13	6.4%	1	2.8%
Sep-16	79	9.5%	15	19.7%	9	6.4%	1	4.0%
Aug-16	55	7.8%	21	21.6%	13	10.0%	2	10.5%
12 Mth Total	753		208		188		52	

	RBC	Platelets
Jul-17	£91,671.24	£35,100.44

CALCULATING IDEAL STOCK

- Daily stock level data for each month.
- Export the data to Excel and calculate the Min, Max and Average stock held.

NHS Blood Stocks Management Scheme bsms0339 (Administrator) ▼

Home	Adult Red Cell ▼	Adult Platelet ▼	Frozen ▼	Hospital Profile	HTT Audit Report ▼	Transparency Tables ▼	E-Reports ▼	Help
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Red Cells Hospital Data Display - St. Mary's Hospital, (Praed Street)

Select from the criteria below

- ☒ Stock level
- ☐ Wastage
- ☐ Gross issues to the hospital
- ☐ Net issues to the hospital
- ☐ Movement between hospitals
- ☐ Transfused

From the start of April ▼ 2015 ▼ to the end of April ▼ 2015 ▼ by Day ▼

Submit



CALCULATING IDEAL STOCK

- Nominal stock was taken for each month

NHS Blood Stocks Management Scheme bsms0339 (Administrator) ▼

Home Adult Red Cell Adult Platelet Frozen Hospital Profile HTT Audit Report Transparency Tables E-Reports Help

Red Cells Stock Entry - St. Mary's Hospital, (Praed Street)

Select the date you wish to enter data for

22-04-2015 [Show Yearly Calendar](#)



Blood Group	Ideal stock	Issuable stock	Nominal stock	Issuable Stock Index
O Pos	50	<input type="text" value="50"/>	10.05	4.97
O Neg	25	<input type="text" value="58"/>	3.2	18.11
A Pos	40	<input type="text" value="31"/>	7.5	4.13
A Neg	10	<input type="text" value="9"/>	0.98	9.15
B Pos	15	<input type="text" value="17"/>	3.63	4.68
B Neg	4	<input type="text" value="13"/>	1.15	11.27
AB Pos	7	<input type="text" value="8"/>	0.9	8.93
AB Neg	3	<input type="text" value="3"/>	0.25	12.2

CALCULATING IDEAL STOCK

- How often are the emergency units that are held remotely used and is each use a justifiable and appropriate.
- If units are held at more than one location can the number of locations or number of units held at each location be reduced.
- Do all emergency units need to be O Neg. Work in Germany where only O Pos was transfused in emergency trauma situations resulted in a 3-6% anti D allo – immunisation. (*Kathleen Selleng, The Lancet 2017*).
- What Other specification is required??



O NEG SPECIFICATIONS ???

- C- E- (rr)
 - K-
 - CMV-
 - Long date (<7days old)
 - Small portion of non-K tested in routine stock
- 
- Adult flying squad units in AE
 - Adult flying squad units in AE
 - Labour Ward
 - Neonatal flying squad in LW
 - All ordered <10 days
- 

PROPOSED ACTIONS

- Reduce stock in line with ideal levels.
- Re-distribute stock for Group O pos & O neg between the Lab and Satellite fridges.
- Communication to staff and Users
- Review in 3 – 6 months.

ACTIONS TAKEN

- So first we agreed new stock levels based on the No. of days we wanted to hold.
- Agreed a re-distribution of group O stock to satellite locations.
 - This involved speaking to the AE manager to inform them of our intentions and how it would benefit the service.
- Communicate to Lab staff what we were changing and why.
 - This was essential to ensure that the changes worked but also to get staff engagement so that they felt supported in any concerns.
- Agree and communicate the start date.



OLD STOCK LEVELS

RED CELL STOCK LEVELS		
ABO and Rh D Type	Optimum Stock	Minimum Stock
O RhD POS	50	30
A RhD POS	40	30
B RhD POS	15	10
AB RhD POS	7	0
O RhD NEG	25	12
A RhD NEG	10	10
B RhD NEG	4	0
AB RhD NEG	2	0
O RhD NEG, multi-satellite	1 complete set of 6	0



NEW STOCK LEVELS

SMH **SITE** Red Cell Stock Levels

Location	O+	O-	A+	A-	B+	B-	AB+	AB-	Paed Split O-
BT Stock Fridge	28	12	20	4	8	4			10
AE Fridge	8	4							
Clarence Labour Ward		2							2
Theatres Fridge									
Trauma Fridge									
Lindo Labour Fridge		2							
BT Issue Fridge									
Total SITE Stock by ABO	36	20	20	4	8	4			12
Total Site Stock	104								



PLATELETS

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Jul-17	63	7.5%	21	16.9%	18	13.7%	9	37.5%
Jun-17	91	12.4%	11	8.6%	31	23.7%	6	25.0%
May-17	66	8.6%	17	18.5%	3	1.7%	0	0.0%
Apr-17	74	10.3%	41	39.4%	29	15.4%	8	30.8%
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Jan-17	58	6.5%	9	6.0%	9	4.5%	2	9.5%
Dec-16	36	4.8%	8	8.4%	14	10.6%	5	19.2%
Nov-16	88	10.2%	17	13.2%	15	8.9%	3	37.5%
Oct-16	46	5.1%	3	2.9%	13	6.4%	1	2.8%
Sep-16	79	9.5%	15	19.7%	9	6.4%	1	4.0%
Aug-16	55	7.8%	21	21.6%	13	10.0%	2	10.5%
12 Mth Total	753		208		188		52	

	RBC	Platelets
Jul-17	£91,671.24	£35,100.44

REVIEW FINDINGS:

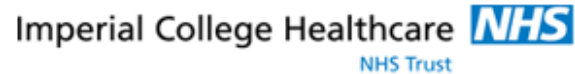
- No nominal platelet stock level was set.
- Platelet Specification was not well understood.
- Platelet ordering and issuing practices were not being monitored.
- Cross ABO group compatibility was not well managed.
- Over ordering.
- Majority of platelets A RhD-, HT-, Apheresis.
- No group B or O.
- Short notice AdHoc for routine requests.
- Issued for 24 hours.
- Available stock ignored to order group matched.



- Tranexamic Acid included as routine for Major surgeries and Trauma's to reduce platelet transfusions.
- Major review of clinical ordering timescales – especially for prophylactic use of platelets.
- Transfer short dated platelet stock to high user site.



ROUTINE DELIVERY SCHEDULE FOR ST MARY'S HOSPITAL



NHSBT Delivery Information Sheet

St Mary's NHSBT Code: P635

Blue Light Deliveries: 75 minutes for standard off the shelf components

NHSBT Deliveries

St MARY'S HOSPITAL	Cut off Order Time	NHSBT Departure Time	Arrival Time ³
MON-FRI daily	22:00 ¹ /00:00 ²	02:00	03:30
MON-FRI daily	11:30	13:30	14:15
MON-FRI daily	17:00	19:00	20:00
SAT only	15:00	17:00	17:45
SUN only	15:00	17:00	17:45

¹denotes 22:00hrs the previous evening for bulk orders

²small additional orders will be accepted up to 2 hours before NHSBT Departure Time

³journey times are based on NHSBT standard modelling data

- Re-trained staff to make better use of routine delivery schedules.
- Empowered staff to challenge ordering times from clinical areas.
- Agreed Adhoc's to be used where clinically indicated.



BMT COMPATIBILITY CHART

10.4.3 Recommended ABO blood group of components transfused in ABO Incompatible Transplants (Post-Transplant Immediate Phase)

ABO Incompatibility	Recipient	Donor	Red cells	Platelets				FFP
				1 st	2 nd	3 rd	4 th	
Major	O	A	O	A	AB	B HT-	O HT-	A or AB
	O	B	O	B	AB	A HT-	O HT-	B or AB
	O	AB	O	AB	A HT-	B HT-	O HT-	AB
	A	AB	A or O	AB	A HT-	B HT-	O HT-	AB
	B	AB	B or O	AB	A HT-	B HT-	O HT-	AB
Minor	A	O	O	A	AB	B HT-	O HT-	A or AB
	B	O	O	B	AB	A HT-	O HT-	B or AB
	AB	O	O	AB	A HT-	B HT-	O HT-	AB
	AB	A	A or O	AB	A HT-	B HT-	O HT-	AB
	AB	B	B or O	AB	B HT-	A HT-	O HT-	AB
Bidirectional	B	A	O	AB	B HT-	A HT-		AB
	A	B	O	AB	A HT-	B HT-		AB
NOTE: RhD negative blood products are required if either the Donor AND / OR Recipient is RhD negative.								

- Liaise with BMT team for 1st, 2nd, 3rd and 4th compatibility options.

- Include these in the BMT Clinical Protocol.



WASTAGE OVER 12 MONTHS

NOVEMBER 2018

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
Jul-18	39	5.8%	2	3.0%	23	21.1%	7	46.7%
Jun-18	20	2.9%	11	14.9%	23	18.1%	5	29.4%
May-18	12	1.8%	3	4.2%	14	6.3%	5	12.2%
Apr-18	36	5.0%	13	10.6%	20	10.7%	4	19.0%
Mar-18	37	4.7%	16	14.0%	17	10.2%	6	27.3%
Feb-18	36	5.5%	9	9.8%	15	13.2%	6	27.3%
Jan-18	22	2.6%	2	1.8%	20	12.8%	6	21.4%
Dec-17	33	4.1%	4	3.3%	12	7.5%	3	9.4%
12 Mth Total	406		90		172		47	

	RBC	Platelets
Nov-18	£50,530.76	£30,648.68

WHERE TO GO FROM HERE



RETURN OF THE BSMS TEAM

- Jan 2019, arranged to meet with Clive Hyam – Data Analyst for the BSMS.
- 45 minutes at St Mary's
- Reviewed our reported wastage VANESSA web portal.
- Discussed our routine platelet ordering and issuing.
- Agreed new nominal stock AND its SPEC !!



PLATELET NOMINAL STOCK LEVEL (MAY 2019)

SMH **SITE** Platelet Stock Levels

Stock Type	Choice	Suitable Blood Groups	Stock Level	Requirements		
				Apr	Irr	CMV-
Emergency BMT Platelet	1 st	A Neg, HT-	1	Yes	Yes	No
	2 nd	AB Neg				
	3 rd	B Neg, HT-				
Routine Platelet 1	1 st	B Neg, HT-	1	Yes	No	No
	2 nd	A Neg, HT-				
	3 rd	AB Neg				
Routine Platelet 2	1 st	A Pos, HT-	1	No	No	No
	2 nd	B Pos, HT-				
	3 rd	AB Pos				
Routine Platelet 3	1 st	O Pos, HT-	1	No	No	No
	2 nd	A Pos, HT-				
	3 rd	B Pos, HT-				

- When ordering platelets for stock the first choice selection should be requested through OBOS.
- If this is unavailable at the desired delivery time then the 2nd and 3rd choice options (including any HT negative requirements) are suitable substitutes.
- If ROUTINE RhD negative stock is unavailable then RhD positive is acceptable. A minimum of 500IU prophylaxis should be issued with this product for women of child bearing potential.

- TOTAL of 4 platelets:
- 1 x Emergency BMT platelet.
- 1x B neg Apr.
- 1 x A pos pooled.
- 1 x O pos pooled.
- 50% RhD Pos.
- 50% pooled.
- 50% non-group A.
- No group AB (1st choice).
- 1st, 2nd & 3rd choice for orders.



WASTAGE OVER 12 MONTHS

FEBRUARY 2019

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
Jul-18	39	5.8%	2	3.0%	23	21.1%	7	46.7%
Jun-18	20	2.9%	11	14.9%	23	18.1%	5	29.4%
May-18	12	1.8%	3	4.2%	14	6.3%	5	12.2%
Apr-18	36	5.0%	13	10.6%	20	10.7%	4	19.0%
Mar-18	37	4.7%	16	14.0%	17	10.2%	6	27.3%
12 Mth Total	378		88		170		44	

	RBC	Platelets
Feb-19	£47,045.88	£30,292.30

WASTAGE OVER 12 MONTHS

MARCH 2019

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Mar-19	36	4.7%	10	7.6%	9	7.0%	2	6.1%
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
Jul-18	39	5.8%	2	3.0%	23	21.1%	7	46.7%
Jun-18	20	2.9%	11	14.9%	23	18.1%	5	29.4%
May-18	12	1.8%	3	4.2%	14	6.3%	5	12.2%
Apr-18	36	5.0%	13	10.6%	20	10.7%	4	19.0%
12 Mth Total	377		82		162		40	

	RBC	Platelets
Mar-19	£48,629.23	£28,866.78

WASTAGE OVER 12 MONTHS

APRIL 2019

Wastage taken from data entered into BSMS

Month	RBC		Oneg RBC		PLT		Aneg PLT	
	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Apr-19	38	4.8%	16	9.6%	18	16.5%	6	26.1%
Mar-19	36	4.7%	10	7.6%	9	7.0%	2	6.1%
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
Jul-18	39	5.8%	2	3.0%	23	21.1%	7	46.7%
Jun-18	20	2.9%	11	14.9%	23	18.1%	5	29.4%
May-18	12	1.8%	3	4.2%	14	6.3%	5	12.2%
12 Mth Total	379		85		160		42	

	RBC	Platelets
Apr-19	£49,056.31	£29,868.64

WASTAGE OVER 12 MONTHS

MAY 2019

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
May-19	63	9.3%	24	20.7%	16	14.2%	4	18.2%
Apr-19	38	4.8%	16	9.6%	18	16.5%	6	26.1%
Mar-19	36	4.7%	10	7.6%	9	7.0%	2	6.1%
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
Jul-18	39	5.8%	2	3.0%	23	21.1%	7	46.7%
Jun-18	20	2.9%	11	14.9%	23	18.1%	5	29.4%
12 Mth Total	430		106		162		41	

	RBC	Platelets
May-19	£55,915.15	£30,356.84

WASTAGE OVER 12 MONTHS

JUNE 2019

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Jun-19	34	4.6%	8	7.8%	5	4.5%	1	3.7%
May-19	63	9.3%	24	20.7%	16	14.2%	4	18.2%
Apr-19	38	4.8%	16	9.6%	18	16.5%	6	26.1%
Mar-19	36	4.7%	10	7.6%	9	7.0%	2	6.1%
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
Jul-18	39	5.8%	2	3.0%	23	21.1%	7	46.7%
12 Mth Total	444		103		144		37	

	RBC	Platelets
Jun-19	£57,872.31	£27,047.76

WASTAGE OVER 12 MONTHS

JULY 2019

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Jul-19	33	4.5%	7	5.4%	10	6.3%	1	2.2%
Jun-19	34	4.6%	8	7.8%	5	4.5%	1	3.7%
May-19	63	9.3%	24	20.7%	16	14.2%	4	18.2%
Apr-19	38	4.8%	16	9.6%	18	16.5%	6	26.1%
Mar-19	36	4.7%	10	7.6%	9	7.0%	2	6.1%
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
Aug-18	50	5.4%	5	4.2%	8	5.1%	2	9.1%
12 Mth Total	438		108		131		31	

	RBC	Platelets
Jul-19	£57,245.22	£24,704.38

WASTAGE OVER 12 MONTHS

AUGUST 2019

Wastage taken from data entered into BSMS

Month	RBC	RBC WAPI	Oneg RBC	Oneg WAPI	PLT	PLT WAPI	Aneg PLT	Aneg WAPI
Aug-19	16	2.1%	2	1.5%	8	4.7%	1	2.7%
Jul-19	33	4.5%	7	5.4%	10	6.3%	1	2.2%
Jun-19	34	4.6%	8	7.8%	5	4.5%	1	3.7%
May-19	63	9.3%	24	20.7%	16	14.2%	4	18.2%
Apr-19	38	4.8%	16	9.6%	18	16.5%	6	26.1%
Mar-19	36	4.7%	10	7.6%	9	7.0%	2	6.1%
Feb-19	27	4.5%	8	11.3%	7	6.8%	3	10.7%
Jan-19	13	2.0%	4	2.8%	13	10.2%	2	9.5%
Dec-18	23	3.6%	1	1.0%	25	21.0%	7	25.0%
Nov-18	57	7.6%	15	16.3%	5	4.2%	2	10.0%
Oct-18	36	5.3%	9	10.6%	7	5.5%	1	3.8%
Sep-18	28	4.4%	1	1.1%	8	6.1%	0	0.0%
12 Mth Total	404		105		131		30	

	RBC	Platelets
Aug-19	£52,930.76	£24,762.62

NHSBT PLATELET ORDERING GUIDELINES

How you can help:

- ✓ Order apheresis, CMV neg, irradiated, HT neg, only where necessary
- ✓ Specify “maximum shelf-life” only where necessary, e.g. for stock platelets
- ✓ Accept appropriate substitutions (if possible)
- ✓ Order with as much notice as possible

How you can help:

- ✓ Effective stock management of A neg platelets
- ✓ Follow guidelines on A neg platelets usage
- ✓ Consider alternative blood groups (high titre negative)



POTENTIAL FUTURE ACTIONS

- Switch to Pooled Platelets as standard for patients greater than 6 months of age.
- Use of Pooled Platelets as a first alternative to WASHED platelets for allergic style reactions (first presentation).

THINGS TO REMEMBER

- **Delays in provision of platelets due to providing Apheresis products is NOT indicated in therapeutic / urgent circumstances.** (*change-in-provision-of-apheresis-platelets_information-for-clinicians-05012015.pdf*)
- **Remember your across group compatibilities – updated by NHSBT May 2019!** (*<https://hospital.blood.co.uk/the-update/?page=3>*)
- **JPAC guidance for deviations from storage and agitation.** (*UKBTS general information 09, March 2017*)

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