NHS
Blood and Transplant

Platelet Supply

2019-2020

Caring Expert Quality

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Platelet Supply Chain

- Platelet Demand forecast – where is it going
- Challenges in meeting demand at ABO D level
  - A neg
  - A pos
- How we meet demand
  - Apheresis (Component Donation)
- Other “Complications” in Supply Chain
  - CMV neg
  - Apheresis
  - High Titre neg
- Work to reduce waste from expiry

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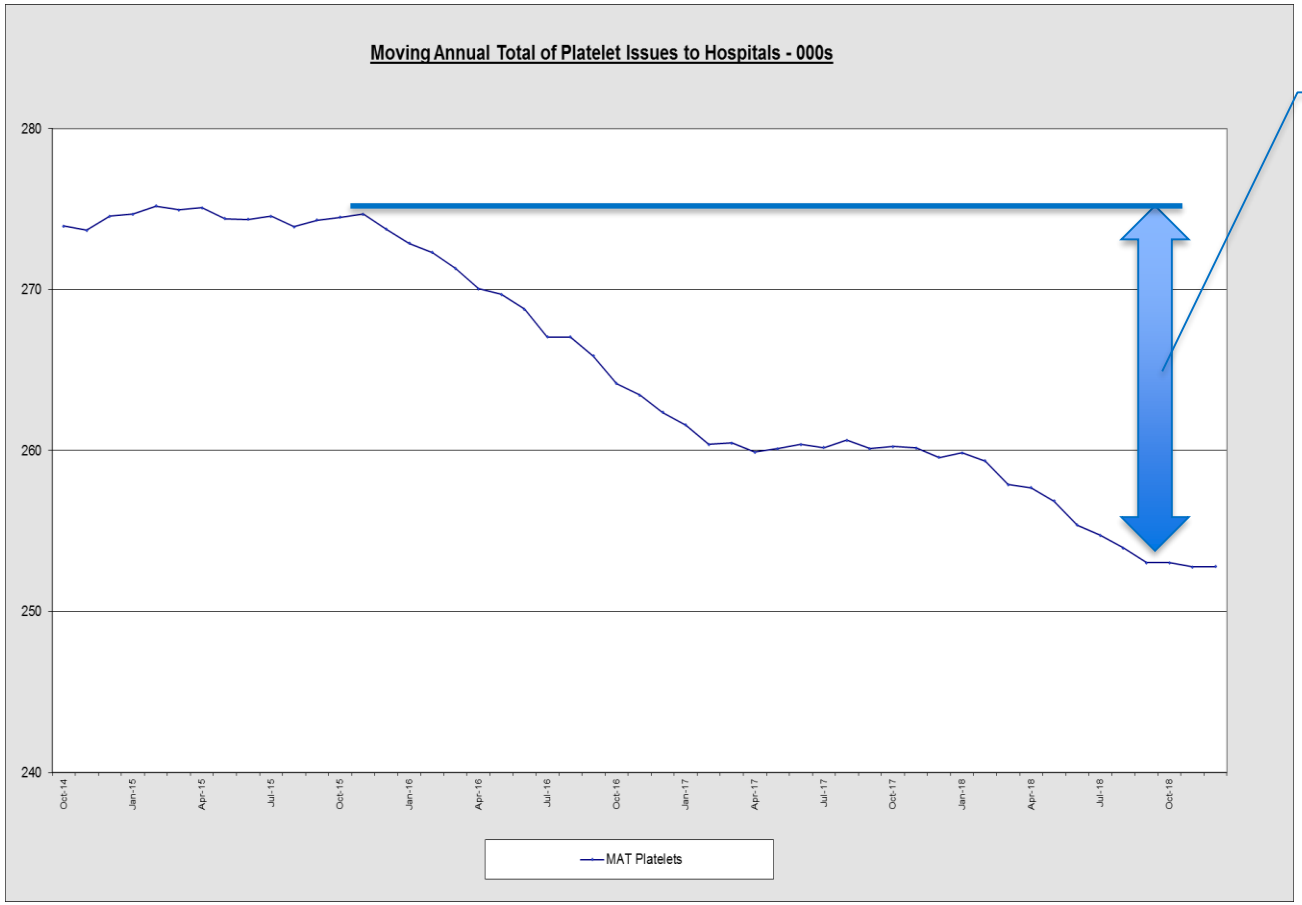
Platelet Demand – Moving Annual Total



Demand has fallen 7.5 % in 2 years

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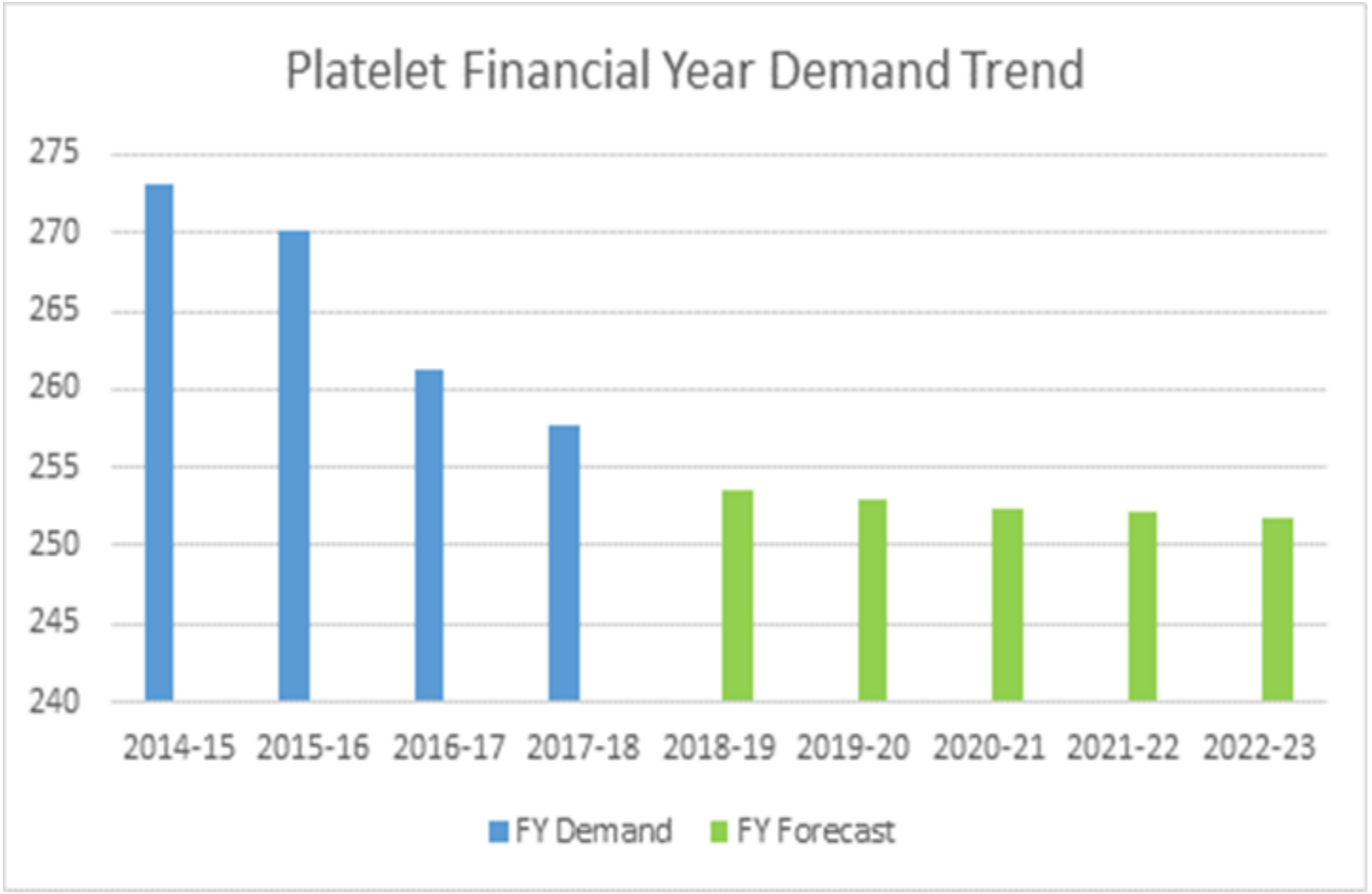
Platelet Demand- Annual



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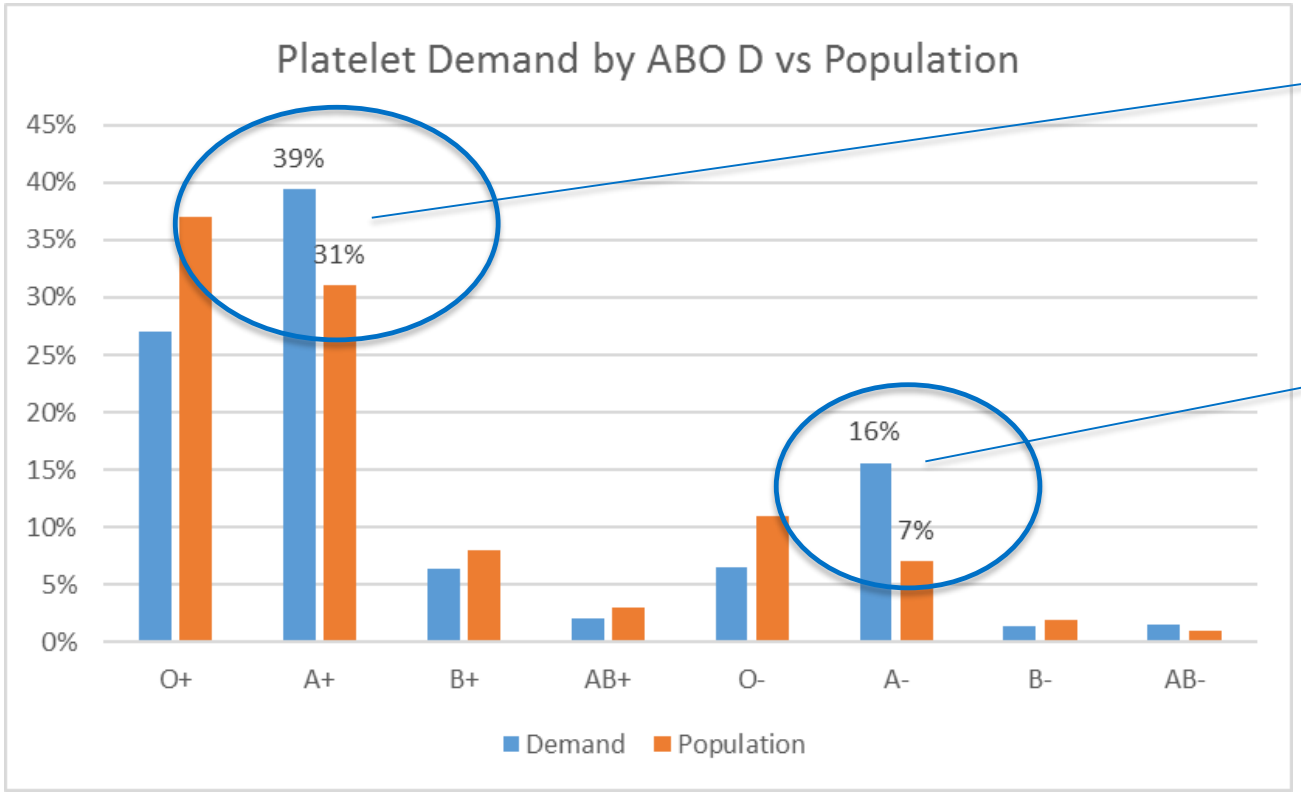
Platelet Demand – ABO D

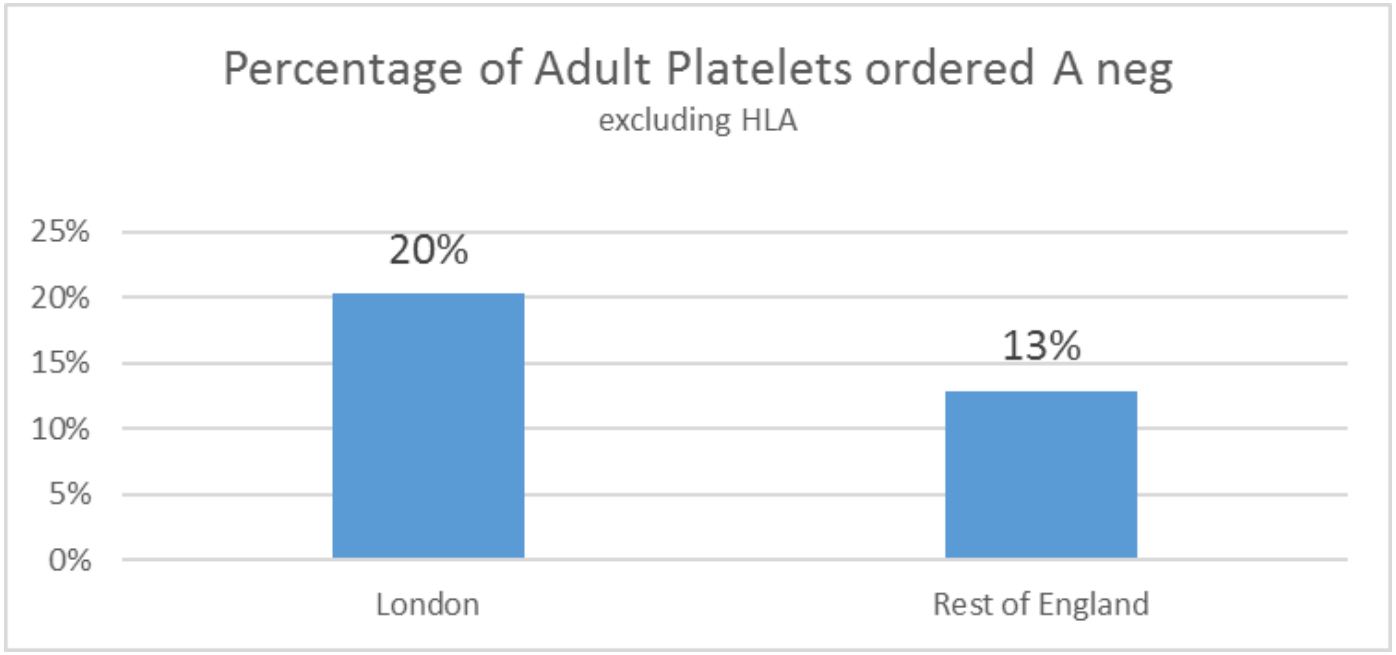


A pos Demand ahead of population

A neg Demand ahead of population

- A neg continues to rise in absolute numbers and percentage of demand for next year.

Platelet Demand – A neg



- The additional A neg Demand in London contributes to the collection and expiry of A neg Red Cells.
- D neg requirement for females of child-bearing age.

- NHSBT considering alternatives to A neg for stock, when in shortage.

Meeting Demand from Apheresis Collection and Pooling

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48% Apheresis Supply - to maintain HLA pool and allow for variation in Demand

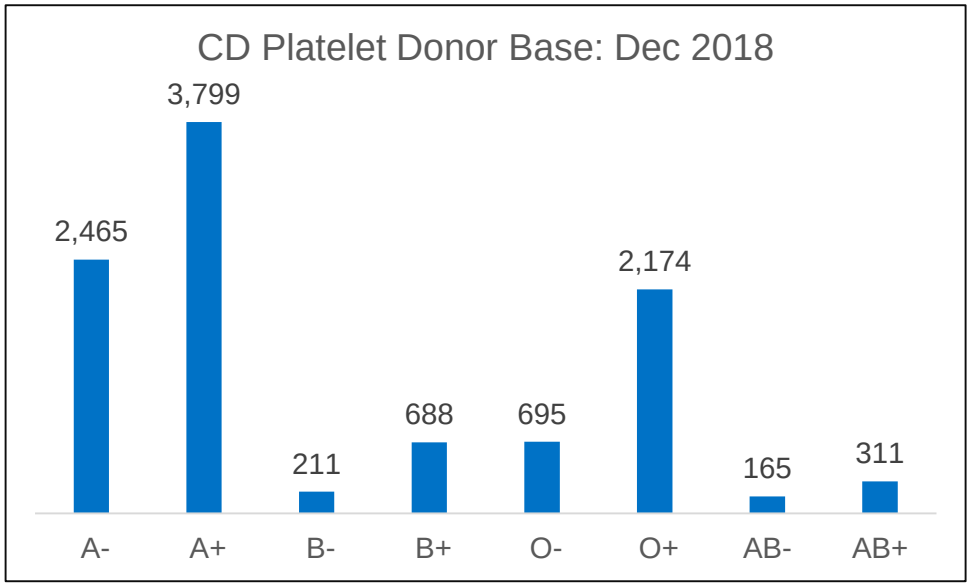
52% Supply from Pooled units, made from Buffy Coats of four Whole Blood donations

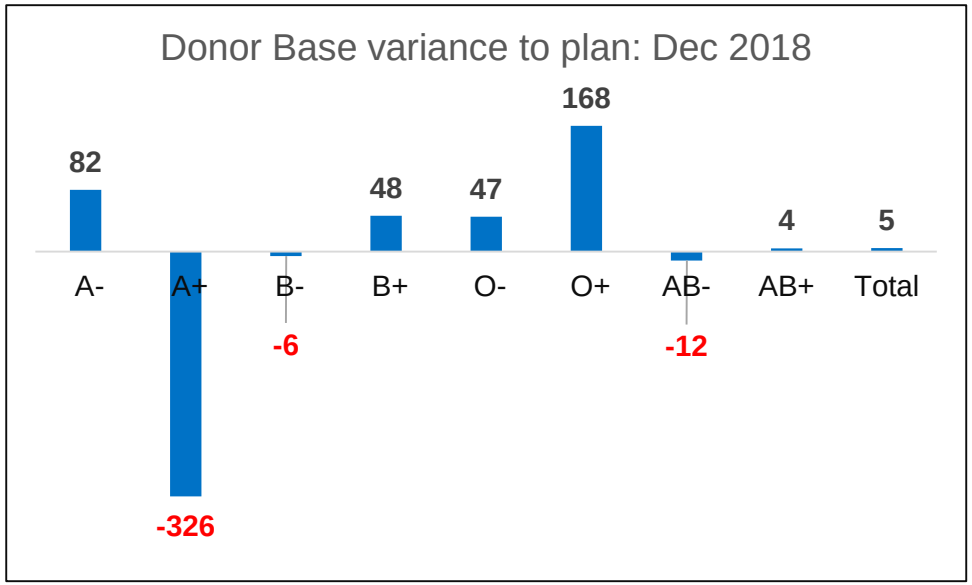
- **We have challenges meeting A neg and A pos Demand**

- A neg currently exceeds supply capacity in some weeks.
  - Additional Whole Blood is collected primarily for the Buffy Coat, to meet demand
    - However this is capped to reduce wastage
  - In weeks of lower apheresis collection, increased A neg demand, Pooled Granulocyte production or lower WB collection stock shortages can occur.

- A pos remains within pooling envelope, provided demand is at predicted levels with apheresis collection above 900 ATDs per week.

Apheresis Collection: Platelet Donor Base Health





- Our overall platelet donor base as of December is 10,508
- We plan our donor base requirements in line with meeting CD demand as it changes though out the year
- In most groups we are exceeding, or close to plan
- The exception is our A Pos donor base which is significantly behind our requirements, though improving

A Neg Apheresis Platelet collection

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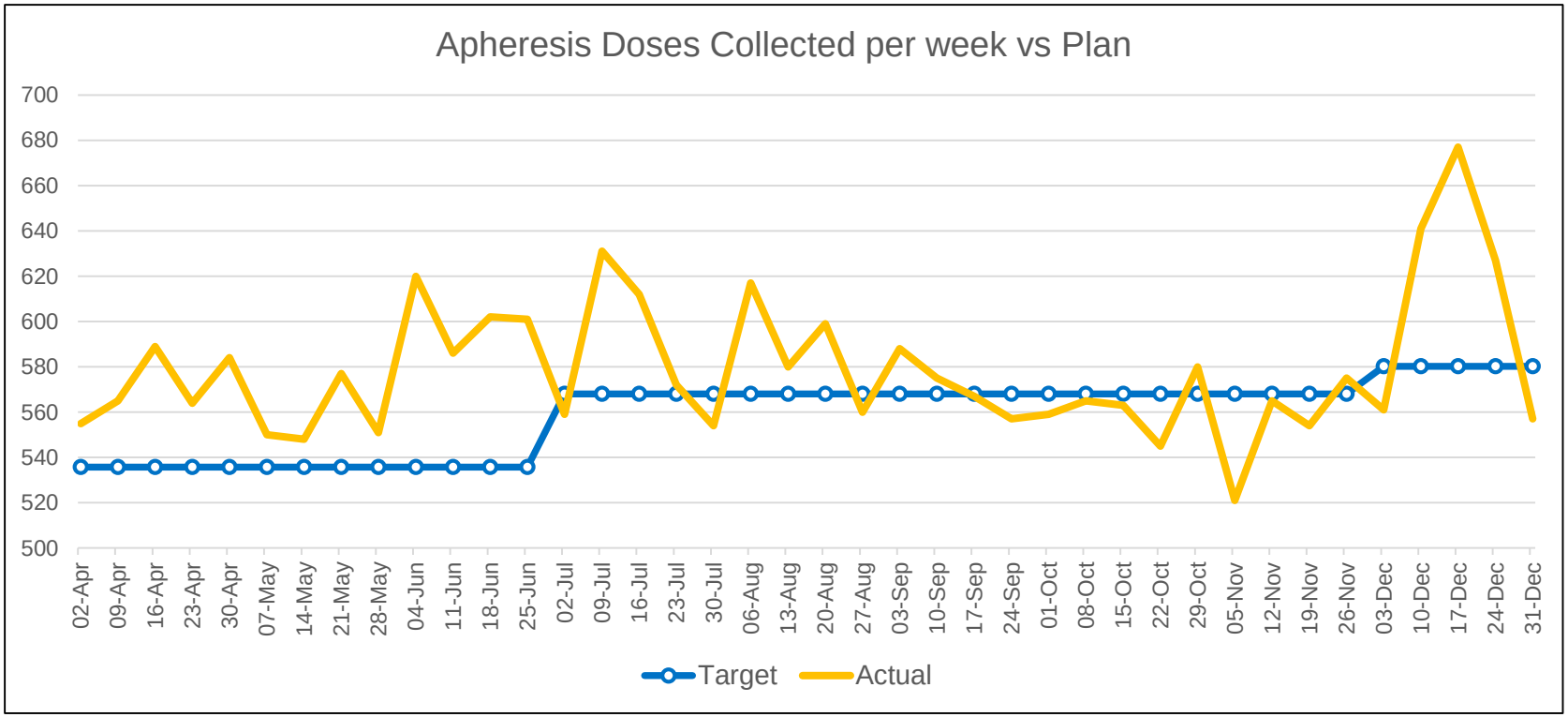

- Even where our donor base is above target, our levels of collection can be inconsistent. This may be due to:
  - New donors appear on the donor base, but who subsequently decide they do not want to commit to the increased demands of platelet donation
  - Not allocating our platelet targets to Donor Centres with the best donor potential to collect them

Improving the planned supply of Apheresis platelets

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Historical Approach Summary

1. WB and CD bed programme by donor centre determined first (usually with focus on increasing whole blood collection)
2. CD capacity utilisation determined by centre, based on a review of overall donor base strength and collection from current year (not blood group specific)
3. Some tweaks to capacity utilisation and/or bed configuration then made to ensure national target is reached

Is **operationally led** and does not sufficiently assess what donor base at blood group level can deliver before proposing targets. Can lead to under collection of specific blood groups.

Revised Approach Summary

1. Assess what each donor centre's donor base can deliver by blood group
2. Apportion target to each donor centre based on the collection each centre can deliver, by blood group.
3. Some tweaks to proposed targets based on operational considerations and/or new donor potential at specific centres

Is **donor base led** and prioritises apportionment of targets based on what each centre can deliver at blood group level. Should lead to better collection overall and at blood group level.

Manufacturing Centre Apheresis Supply

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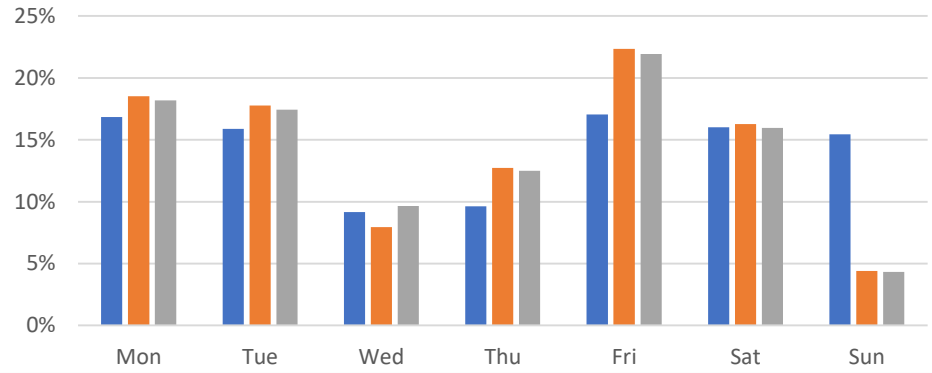
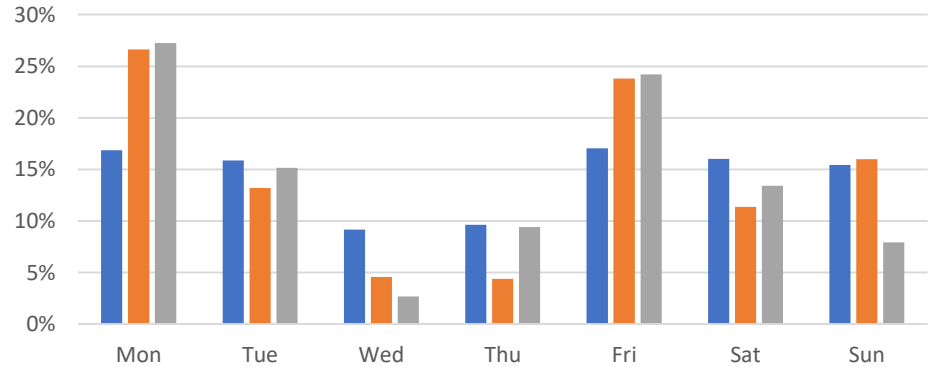
Colindale



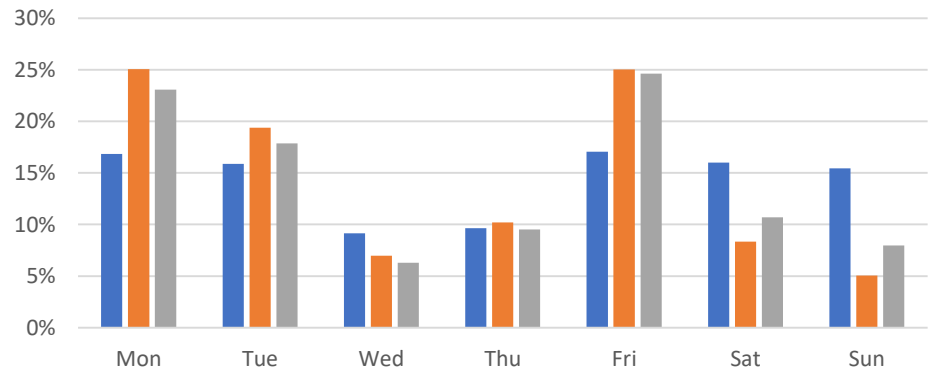
- Colindale supply is fairly closely aligned to demand most days of the week, with the exception of a significant gap on Sundays. We should seek to reduce Friday supply and increase Sunday supply.

Filton



- Filton supply is most unbalanced by day of the week between weeks 1 and 2. In particular, we should seek to better balance the difference in supply on Sundays and Thursdays week 1 and 2. This imbalance has been created by proposed changes to Bristol and Plymouth centres.

Manchester



- Manchester supply has big gaps on both weekend days, in particular there is less weekend supply on week 1 than week 2. We should seek to decrease Monday/Friday supply and increase weekend supply, especially in week 1.

Ideal requirement | Anticipated Collection Week 1 | Anticipated Collection Week 2

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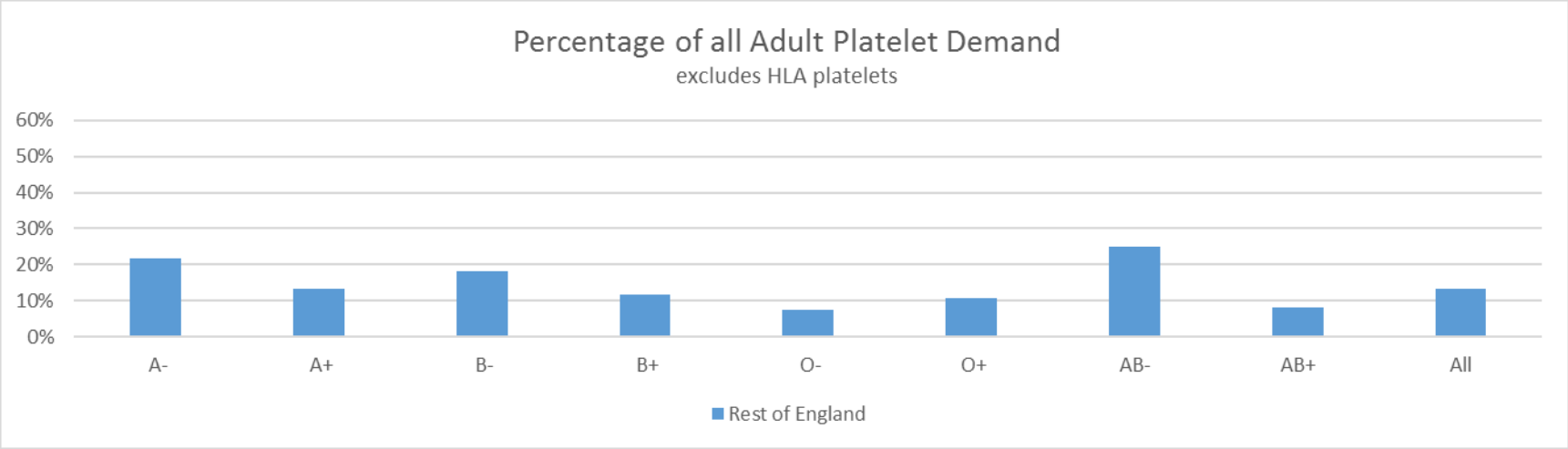
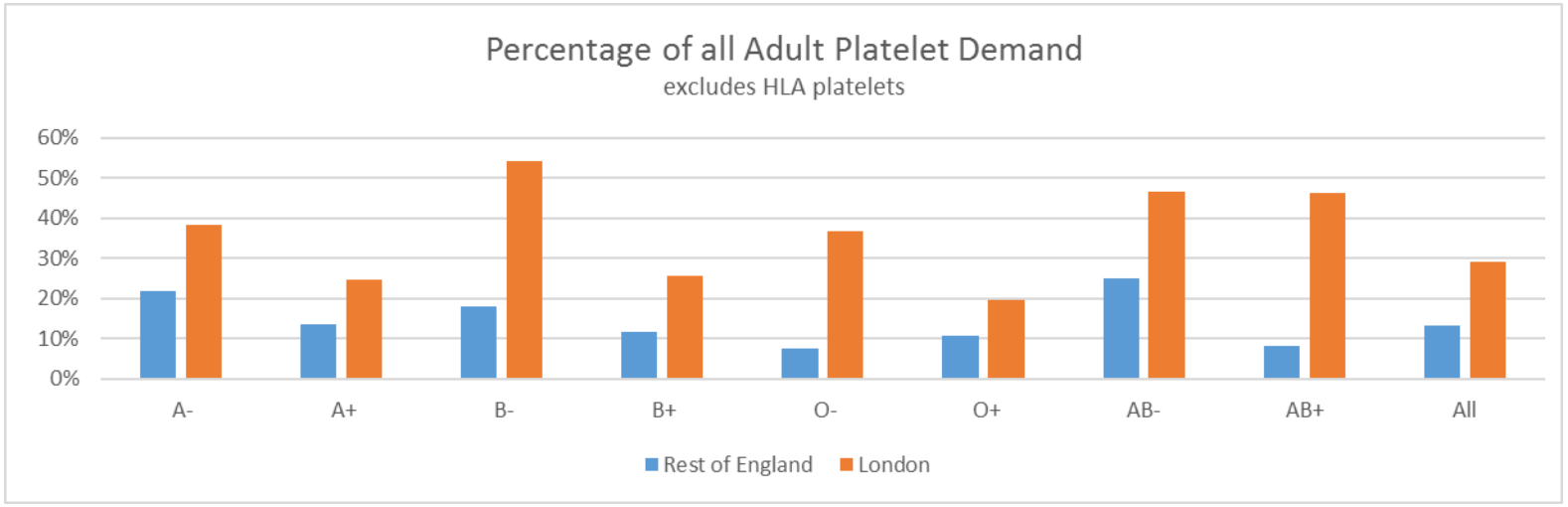
Apheresis Demand

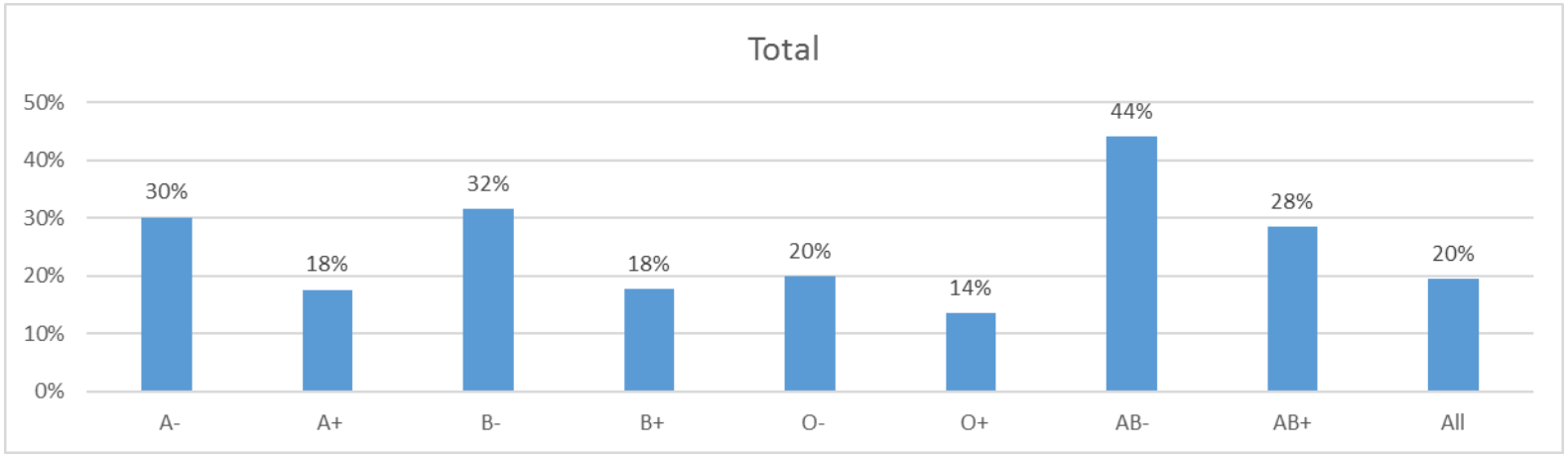


- Apheresis platelets are required for HLA/HPA selected transfusions, neonatal usage, IUT and IgA- transfusions
- Patients born after 1996 *may* benefit from reduced risk of vCJD however there have been no cases since leuco-depletion began.
- Apheresis platelets are more likely to cause an allergic reaction than platelets pooled in PAS, due to the presence of more plasma proteins

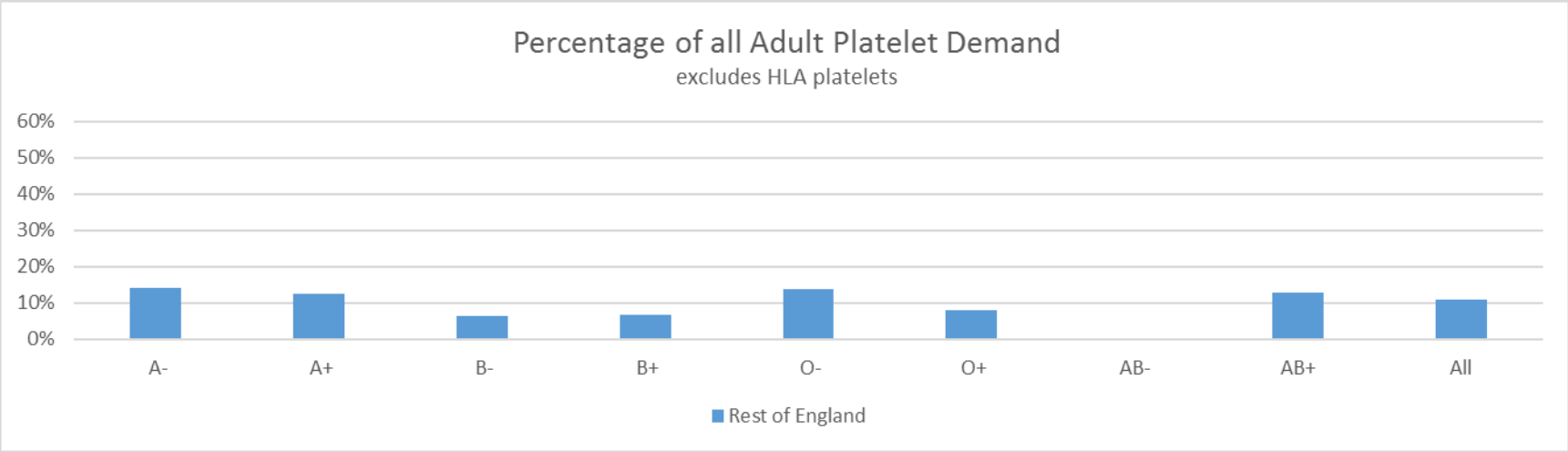
Apheresis Demand, including London



- With London requests, Demand at 20% nationally (including 4% for HLAs)

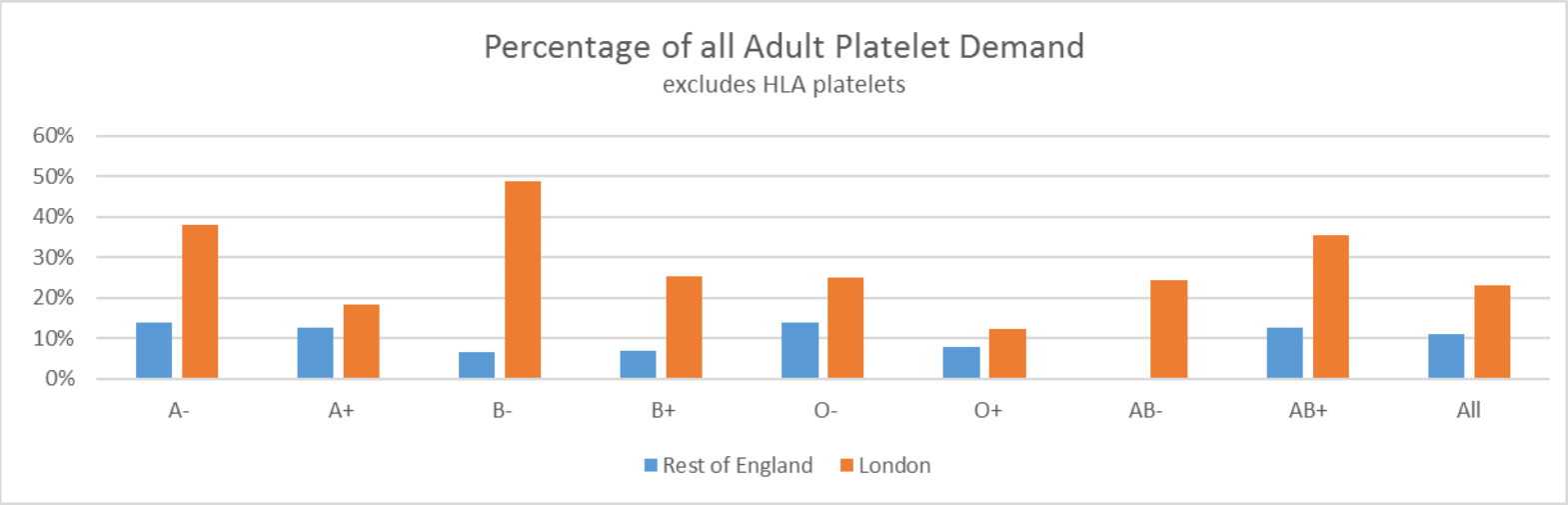


CMV negative Demand

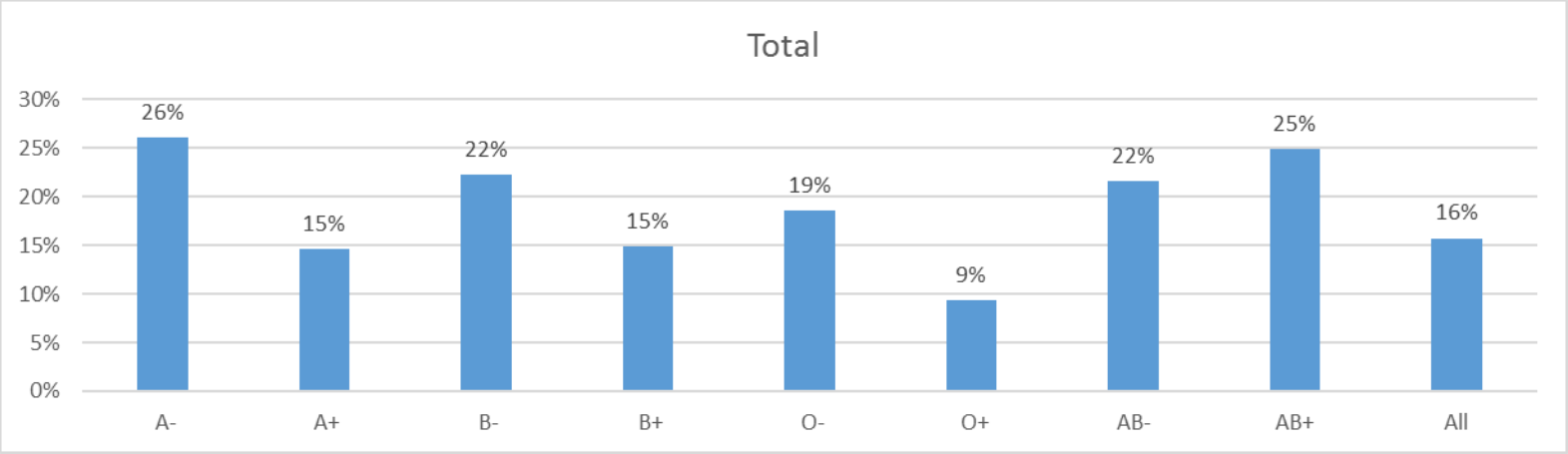


- CMV is only required on adult platelets for elective transfusions during pregnancy (not labour or delivery).
- CMV is disproportionately available on apheresis units, which are all tested and 60% CMV neg
  - ONE test required for two ATDs.
- For pooled platelet EIGHT tests are required for two units
  - each negative result needs to be matched with three others in a pool

CMV negative Demand, including London



With London requests, Demand at 16% nationally



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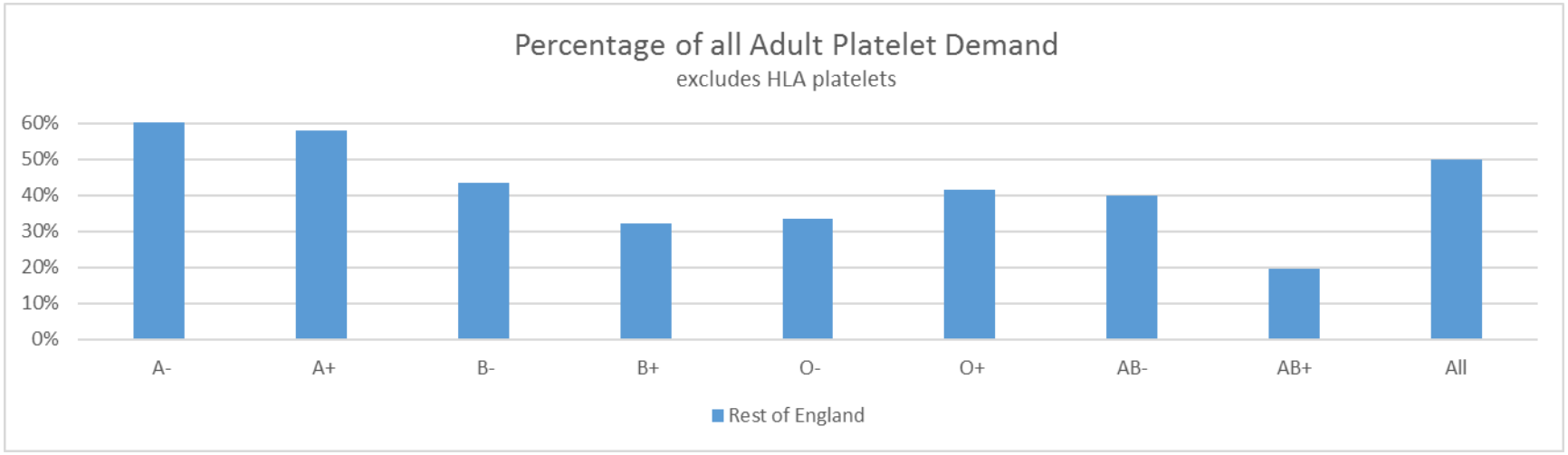
High Titre negative Demand

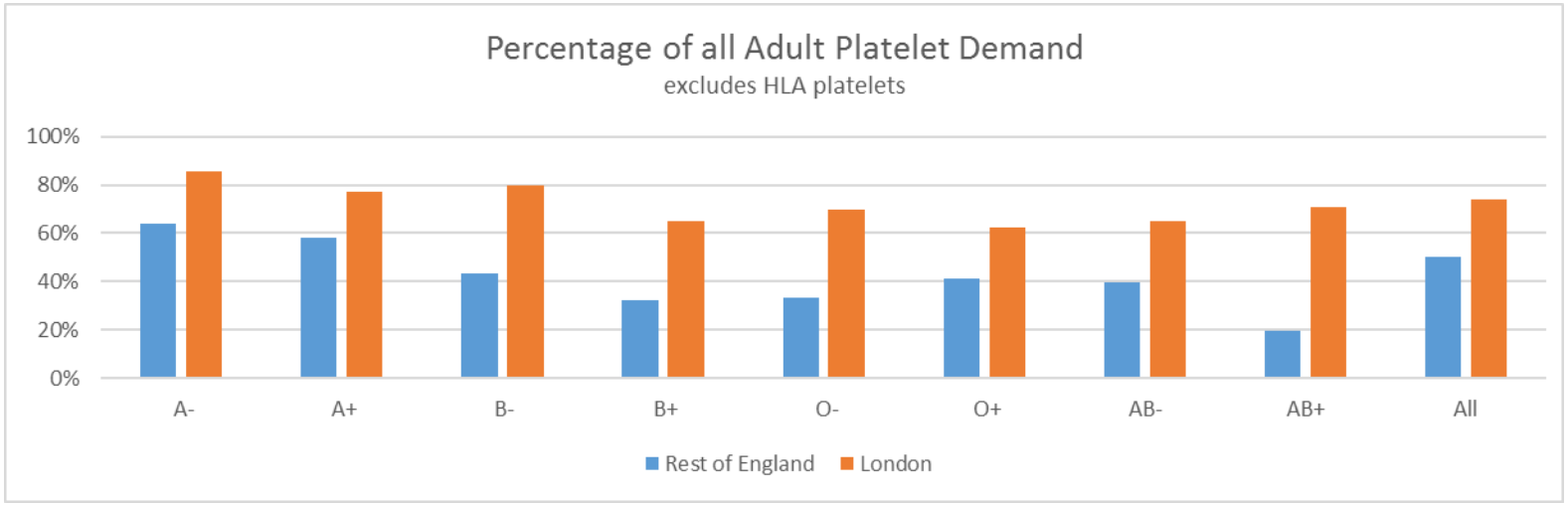


- Platelets tested to show lower presence of Anti-A and Anti-B haemagglutins
- These allow platelets to be transfused across groups as below:

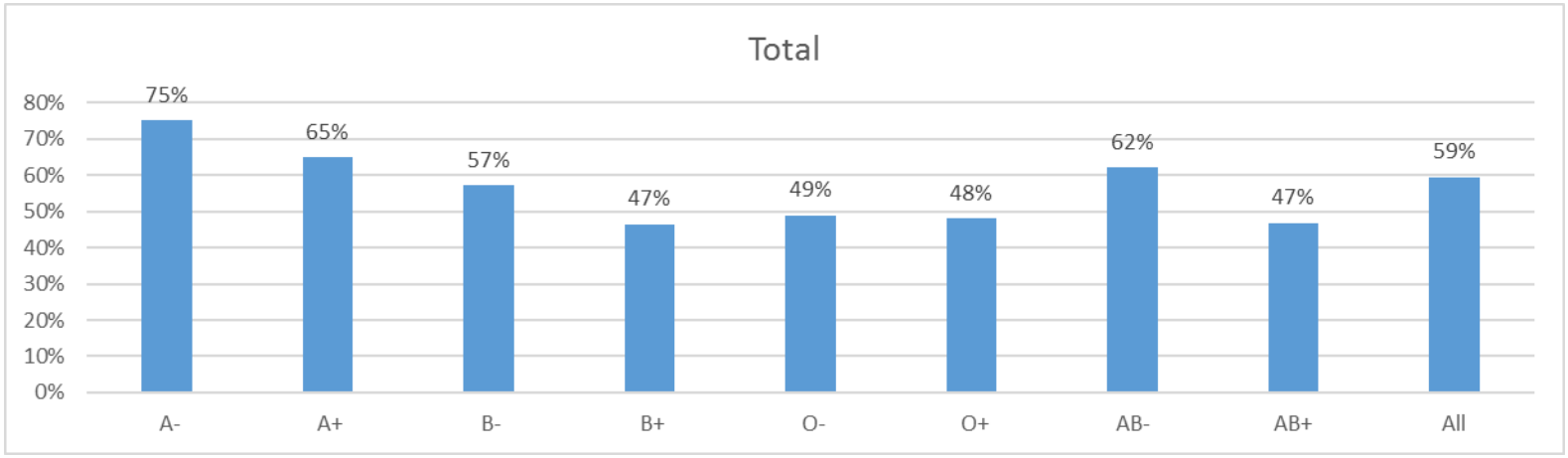
Recipient Group	O	A	B	AB
1st Choice	O	A	B	AB
2nd Choice	A B	AB B High Titre O High Titre*	AB A High Titre O High Titre*	A High Titre B High Titre O High Titre*
*O Platelets are not recommended for non-O neonates and children due to risk of haemolysis				

- Named patients should have a known group and so be ABO RhD Matched

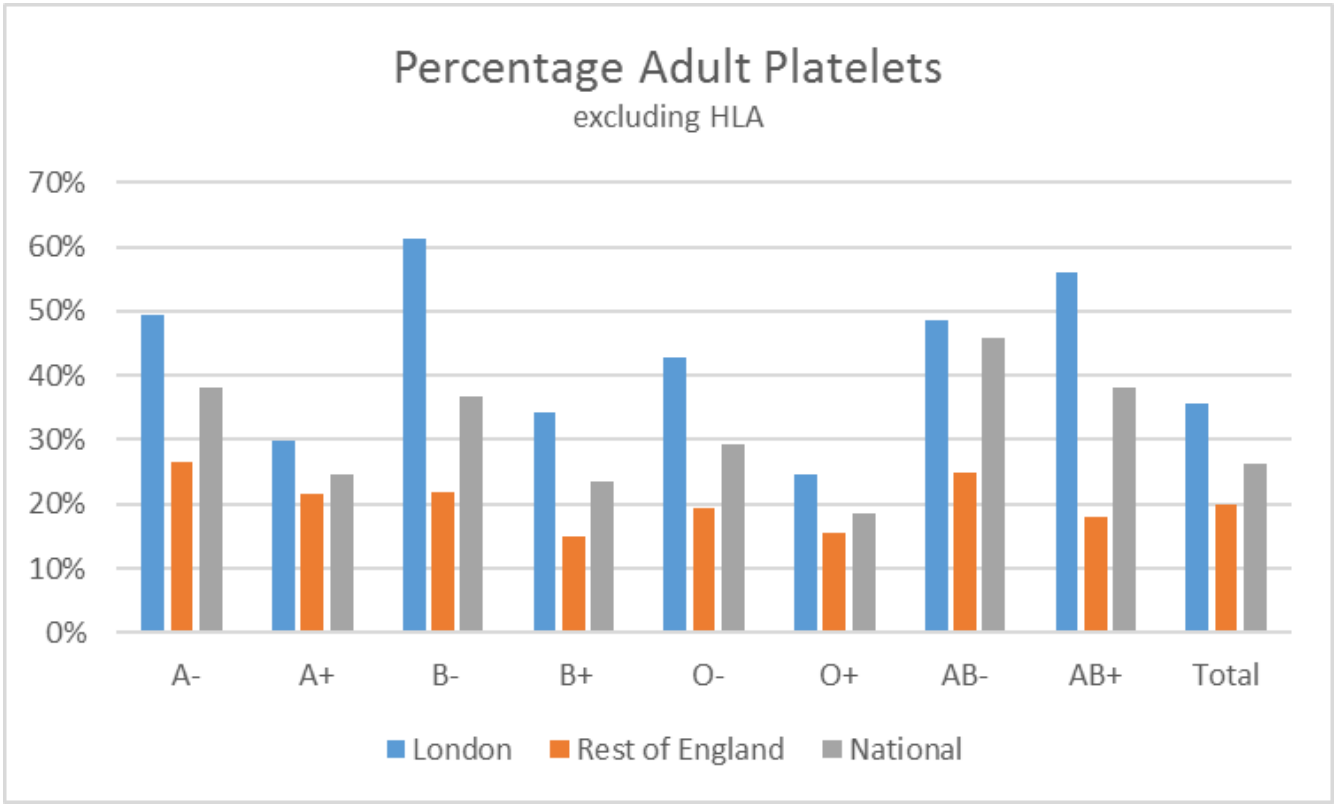
HT negative Demand, including London



With London requests, Demand at 59% nationally



Combined CMV neg or Apheresis



- Nationally 27% of platelets are ordered either CMV neg and/or apheresis
- An additional 4% apheresis HLA demand
- 48% allows limited scope to meet variations in demand at ABO D and on a daily and SHU level

Effect of High Specification on Expiry

Total Platelet expiries - 2018/19 - By Site					
Site		YTD	Monthly	% of Issues	% of All Expiries
J1	Basildon	458	65	9.6%	5%
H1	Birmingham	943	135	5.6%	10%
J2	Cambridge	361	52	5.3%	4%
W1	Colindale	2,140	306	9.1%	24%
T7	Filton	806	115	12.1%	9%
M2	Lancaster	209	30	6.3%	2%
C1	Leeds	174	25	1.6%	2%
M4	Liverpool	405	58	5.5%	4%
M1	Manchester	682	97	5.9%	8%
N1	Newcastle	595	85	7.2%	7%
T3	Oxford	293	42	4.6%	3%
T2	Plymouth	125	18	4.2%	1%
D1	Sheffield	408	58	3.2%	5%
S1	Southampton	213	30	2.6%	2%
P1	Tooting	1,181	169	4.4%	13%
Total		8,992	1,285		

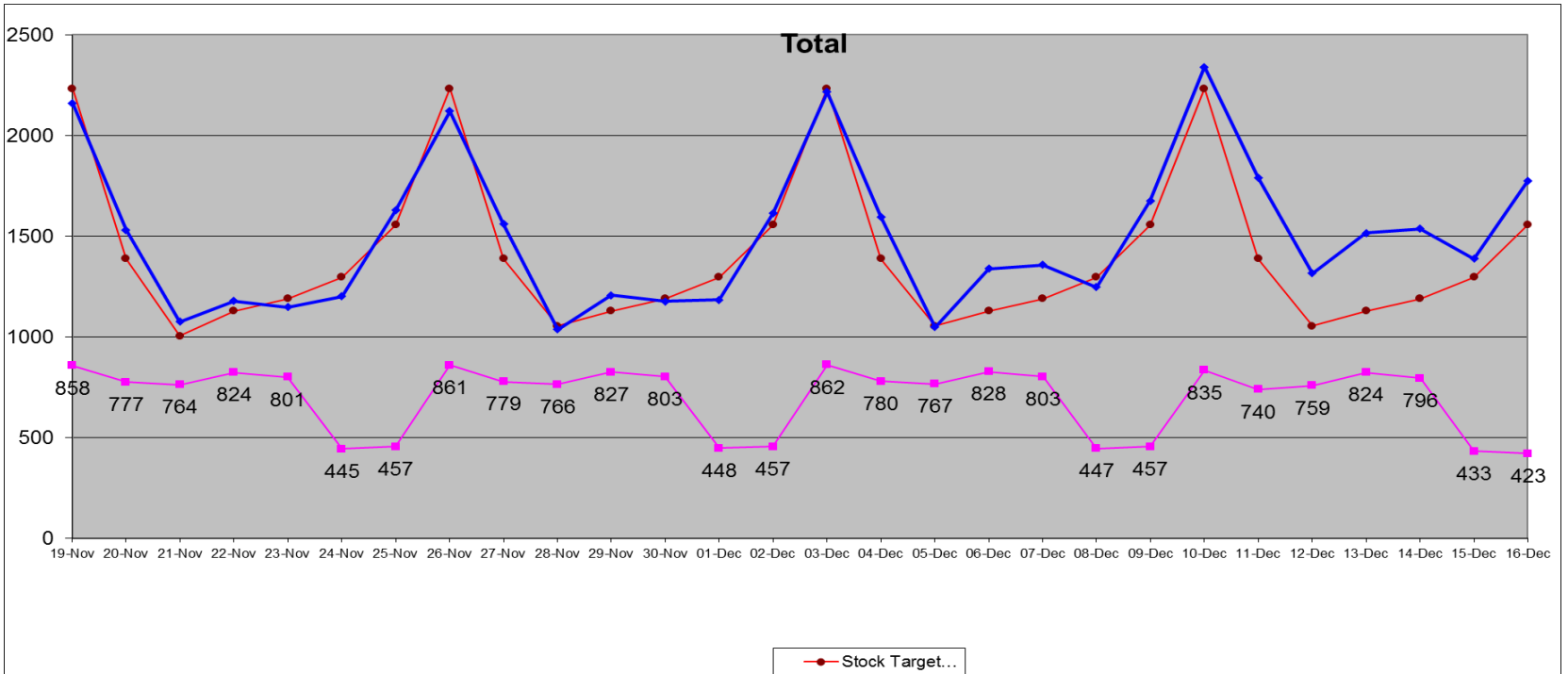
- Pooled units produced in Colindale which are not HT neg do not get used
- Expiries in London represents 39% of all NHSBT expiries
  - All adult platelet expiries represent
    - £0.6 million p.a.

Actions to address expiry

- Reduce the weekly Monday morning stock build, which creates peaks in the stock
    - Improve freshness, by collecting more units at the weekend where this is cost-effective
    - e.g. at West End Donor Centre and Beckenham team
- Improve stock management in Hospital Services work to FIFO
- Improve Distribution to SHUs – starting this month we will:
    - Pull more apheresis and CMV neg units into London
    - Push more pooled units from Colindale to the north
- Work with Customer Services and Hospital Services to:
    - Reduce Demand for apheresis and CMV neg where not clinically required
    - Manage appropriate Demand for HT neg

Reducing Stock Peaks

- Collection is mostly Monday to Friday,
- All platelets need 2 days to be fully Bacterially tested before validation
- This requires NHSBT to build stock in advance of demand. This causes older stock to be issued mid week.
- Additional weekend collection lowers the “peak”, giving fewer less desirable “older” units on Tuesday and Wednesday.



Improve Stock Management in Hospital Services

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- Layout change on agitators in Hospital Services
- Providing contracted shelf life for stock units
- Substituting RhD Neg into RhD Pos
- Substituting Irradiated into non-Irradiated orders
- HT for Stock only and when transfusing across ABO group
- Querying Apheresis/CMV orders

Managing HT and FIFO

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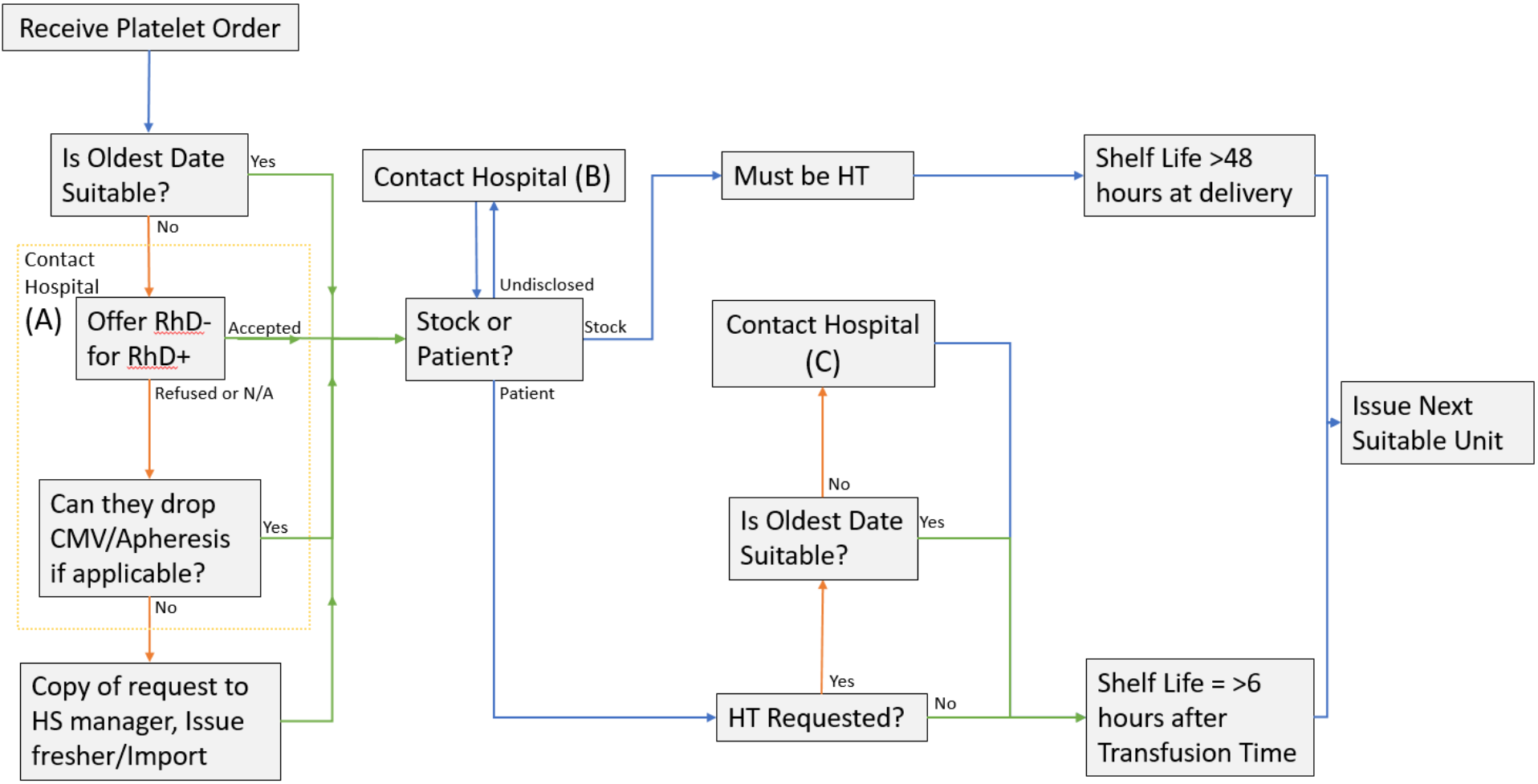

Manchester Trial Feedback

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- RhD Substitutions Neg-> Pos: No refusals from hospitals contacted
- Apheresis & CMV queries: NHSBT to follow hospital policy but to work with Customer Services to advise hospitals on necessity
- 48 hour stock life: No negative feedback from hospitals,
- HS can complete morning stock deliveries earlier, often substituting Irradiated units /RhD- into orders
- HT: No hospitals of those contacted had an issue with dropping HT for named patients, concerns raised by Customer Services about hospital expiry resulted in keeping the request to ask first

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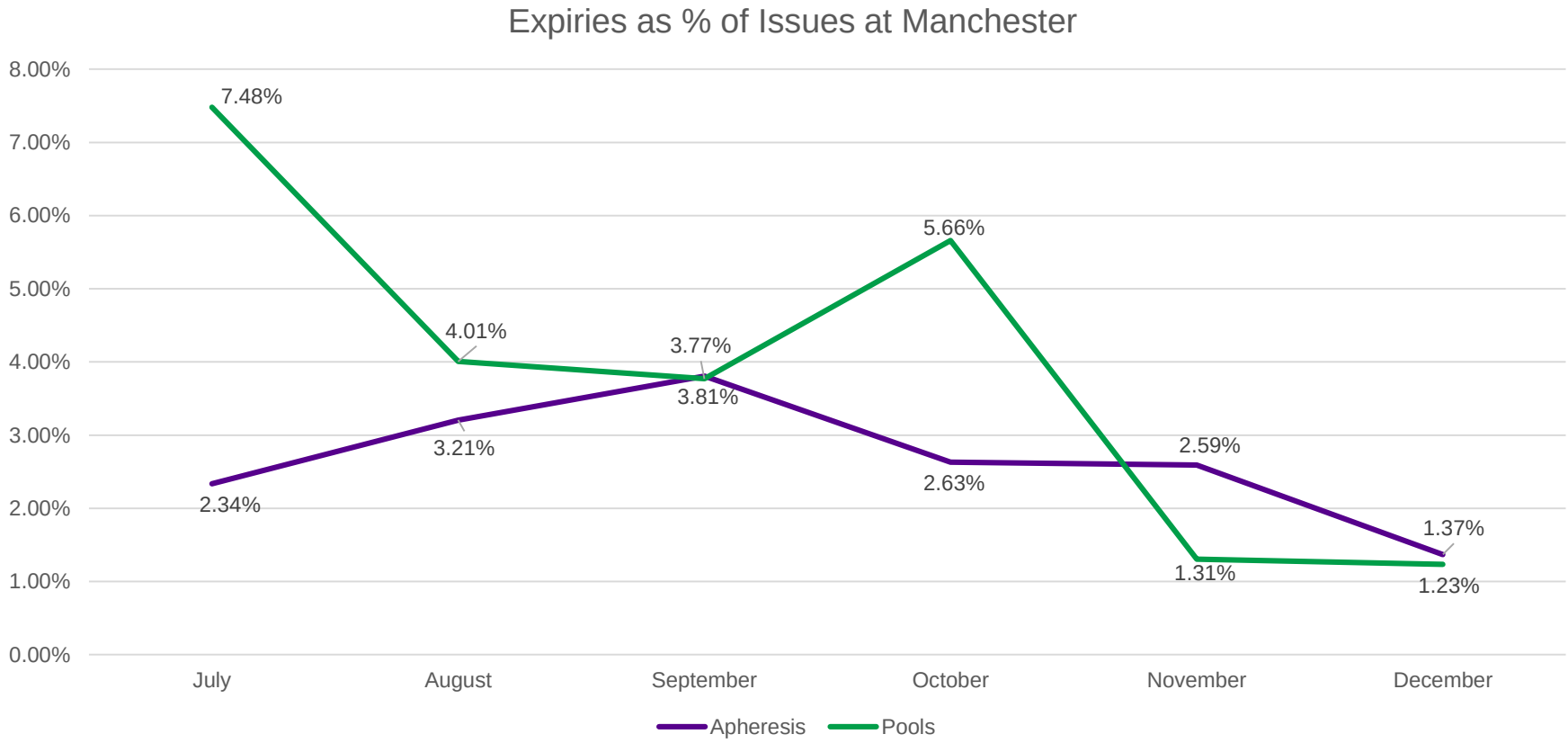
Results so far



Conclusions

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- NHSBT is aiming to meet Demand more closely, by better stock distribution.
- We need support from customers, particularly from LoPAG> The ask is to:
  - ensure orders are not over specified for CMV and HT
  - be flexible regarding merits of pools and apheresis for Club 1996
  - ensure the proportion of A neg stock platelets is appropriate

We will work with Customer Services, our customers and Hospital Services to reduce wastage, without impact on our patients.