

Red Cell Stock Critical Incident Lessons Learned

1. Summary and Purpose of Paper

This paper (provided for information only) summarises the lessons learned from two NHSBT critical incidents declared in the second half of 2021 due to low red cell stocks.

Key points for the NHSBT Board to note are:

- COVID-19 created supply chain challenges in 2021 resulting in variable red cell stock levels. NHSBT declared two critical incidents in 2021 as stock resilience in some ABO groups was low.
- The focussed organisation-wide critical incident response kept stocks above two days and helped recovery, avoiding an amber alert and ensuring continuity of high service levels.
- Some process improvements are recommended to ensure appropriate action is taken at the right time to improve stock resilience and minimise the risk of raising a critical incident in future.

2. Background

Two national critical incidents were declared in 2021 due to low red cell stocks. On both occasions, overall red cell stock levels never fell below c5 days of stock (DOS) and hospital service¹ was not impacted. However, two considerations led to the decisions to proactively stand-up critical incidents. Firstly, some blood groups fell to lower levels (see appendix one) and were forecast to decline further (including the 'universal' O D negative type). Secondly, the COVID-19 pandemic was resulting in greater variability and uncertainty in demand/supply which introduced new challenges to recovery.

Incident one overview (28 July 2021, closed 21 days later on 18 August 2021):

- Hospital demand increased by c3% during May-June vs April, as COVID-19 hospitalisations decreased. This change was forecast and the collection plan was adjusted in advance. Approximately 1,500 units were also provided to support other UK services over this period.
- Donor responsiveness declined as social restrictions eased and COVID-19 isolation notifications increased (the 'pingdemic').
- Planned appointment capacity was sufficient to meet the new plan. However, increasing numbers of isolating staff resulted in high NHSBT-led donor cancellations.
- Stocks improved as the 'pingdemic' began to reduce hospital demand and collection improved when whole blood appointment capacity was borrowed from plasma donor centres.

Incident two overview (27 October 2021, closed 98 days later on 2 February 2022):

- Collection performance declined from early-October due to increases in donors not attending booked appointments or cancelling at very short-notice. This was largely driven by increases in seasonal illness and COVID-19. O group stocks were persistently low.
- Direct marketing and campaign activity successfully grew stocks to 6 DOS heading into December and the National Emergency Team were considering standing the incident down.
- The rapid spread of Omicron during December led to fewer donor bookings and higher 'not attend' rates. At peak, 1/5 donation staff were absent due to illness, isolation or annual leave.
- As Omicron cases decreased, direct marketing and campaign activity led to collection above planned levels in early-January. Some teams also trialled larger appointment grid sizes to create more capacity (no additional capacity borrowed from plasma, due to site closures).

Stakeholders from across NHSBT were members of the national emergency teams overseeing these stock challenges. All participating stakeholders were given opportunity to contribute to the lessons learned. A list of those who have inputted is found at appendix two.

¹ On Time, In Full (OTIF) performance excluding Ro was maintained at >98.5%

3. What worked well?

Stakeholders gave the following feedback on what worked well:

- The critical incidents helped with coordination of activity to recover stock. This was important in the circumstances as the pandemic resulted in high levels of performance variability. A focussed response was required to prevent further stock decline and maintain continuity of supply.
- The National Emergency Team (NET) stood-up quickly with strong leadership, good stakeholder attendance and clear action tracking by loggists. A weekly critical incident meeting cadence worked best, given the protracted nature of the incidents.
- Weekly BOLT meetings complemented the weekly cycle of critical incident meetings. This enabled timely communication of progress to Executive Team members and ensured Executive-level support where required to quickly overcome challenges.
- There was provision of appropriate and timely data to aid decision making. Where uncertainty existed, scenario planning models were well utilised in line with supply chain industry best practice to create plans and forecasts.
- Communication to hospitals and the blood transfusion community was good and appropriately timed. Issuing a 'pre-amber alert' was welcomed by many hospitals and the National Blood Transfusion Committee (NBTC), as it heightened readiness in the event of a formal alert.
- Increased outbound dialling from the National Call Centre (NCC) was the most effective method for increasing collections, including the phone call reminders from the concierge team. This activity was quickly scaled-up and was able to be highly targeted to donors by blood group.
- Reducing the level of new donors was an effective method for creating appointment opportunities for donors with known blood-groups. However, the risks associated with this approach should also be noted, including a poor experience for new enrollees and slower donor base growth vs plan, including in key segments (e.g. O D negative and Ro Kell negative).
- During the second incident, a trial was conducted on a small number of donation teams to increase appointment grid sizes to 145% of capacity to counter-act high donor 'not attend' rates. This demonstrated some promising results and the trial has been extended to more teams.

4. Where can we improve?

Stakeholders noted the following key opportunities to improve:

- At the beginning of the second incident, there was misalignment between Blood Donation Operations (BD) and Donor Experience (DX) plans. This lack of cohesion meant that activities to recover stock were initially insufficiently synchronised and lacked detail. The expectation for deeper cohesion was set at BOLT, which ensured plans became quickly aligned. This then led to the initial recovery of stocks back to target levels by November. When stocks declined again due to the emergence of Omicron, cohesion between these areas was stronger.
- Low stocks might have been avoided if bold remedial actions had been prioritised sooner. Stock forecasts had predicted declining stock levels several weeks before incidents were declared.
- Several approaches for increasing appointment capacity were implemented to create additional opportunities for more donors, to counter-act high 'not attend' rates. Some of these approaches had adverse and/or unintended consequences:
 - Team meeting and training time was often converted to blood collection time on teams. This adversely impacted team morale and other important activity (e.g. PDPRs).
 - High levels of overtime and agency spend were incurred to deploy additional sessions or increase existing sessions. This was expensive and adversely impacted team morale.
 - Converting plasma collection capacity to whole blood resulted in lost opportunities to collect plasma and created some operational challenges in plasma sites.

- In November 2021, NHSBT quickly prepared a national media appeal that became buried in the news agenda at the time. Similar appeals in the future should be appropriately timed and avoid generic content by instead focusing the narrative on ‘what’s happening?’ Additionally, localised activity targeted to donor segments in areas with available appointments were favourable in this scenario vs national appeals.
- The ‘National Blood Stock Management and Shortage Protocol’ (MPD46) provided structure to determine when and how to raise critical stock incidents. However, more guidance should be developed to outline specifically which actions to take to improve stock and at what point.
- The ‘Critical Incident Communication Plan – Blood Stock Shortage’ (MPD1380) requires updating and should include the requirement to communicate to NHS England and Improvement’s Emergency Preparedness, Resilience and Response (EPRR) team in the event of stock shortage. This document could also be merged with MPD46.
- During the Omicron wave, NHSBT was deferring donors beyond the JPAC requirements for sore throats, colds and post-vaccination side-effects where a negative PCR test had confirmed the absence of COVID-19 infection. This resulted in deferral or non-attendance of donors who should have been considered eligible.
- Hospital stockholding and usage data gathered by the Blood Stocks Management Scheme (BSMS) helped inform NHSBT’s response. However, the data is voluntarily provided by hospitals (some do not respond), is not real time and is labour intensive to gather and report.

5. Actions/next steps

#	Action	Owner	Deadline
1	Develop supply resilience plans, to include: <ul style="list-style-type: none"> • The activities to increase/decrease collection, including the anticipated effectiveness and pros/cons of each activity • The trigger points and decision-making rights for taking these actions (i.e. before stocks hit critical levels). • Test these resilience plans by modelling some possible business continuity scenarios. Incorporate conclusions into the extant Integrated Supply Planning (ISP) process.	Dean Neill	22 March 2022
2	Update the ‘National Blood Stock Management and Shortage Protocol’ (MPD46) to include: <ul style="list-style-type: none"> • Reference to the supply resilience activities (see action #1) • The trigger for issuing a ‘pre-amber alert’ • The practical steps involved in declaring an alert • Clarify the role NHSEI’s National EPRR Team 	Dean Neill	30 April 2022
3	Update the ‘Critical Incident Communication Plan – Blood Stock Shortage’ (MPD1380) and consider merging with MPD46.	Simone Whitfield	30 April 2022
4	Update the ‘Handling JPAC Change Notifications’ (SOP3) to ensure aligned wording in the donor knowledge base, online eligibility and screening documents when a change to donor eligibility is introduced.	Ella Poppitt	31 March 2022
5	NHSBT’s overarching Critical Incident Plan (MPD539) and associated training material should expand on the interaction between Strategic and Tactical incident teams in an emergency.	Tom Cowdrey	30 April 2022

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Appendix One: Red Cells – Average Days of Stock Per Week

w/c	A-	A+	B-	B+	O-	O+	AB-	AB+	Total
17/05/2021	9.9	6.6	6.6	8.6	5.8	6.9	7.9	10.1	7.1
24/05/2021	9.4	6.3	6.3	8.1	5.5	6.6	8.9	10.5	6.7
31/05/2021	8.4	6.0	5.2	7.5	4.7	5.8	5.9	10.3	6.1
07/06/2021	8.2	5.5	4.1	7.5	4.5	5.0	4.5	10.4	5.6
14/06/2021	8.1	5.1	4.0	7.4	4.3	4.2	4.6	10.2	5.2
21/06/2021	8.1	5.2	4.1	7.7	4.6	4.2	6.5	9.4	5.2
28/06/2021	8.6	5.3	4.1	8.5	4.9	4.2	8.1	9.8	5.5
05/07/2021	9.0	5.2	4.1	8.9	4.9	4.0	9.6	10.1	5.4
12/07/2021	9.4	5.2	3.8	9.3	4.8	4.1	10.0	10.2	5.5
19/07/2021	9.2	4.8	3.2	9.5	4.4	3.8	9.7	10.0	5.2
26/07/2021	8.6	4.7	3.4	9.2	3.9	3.6	8.5	9.7	4.9
02/08/2021	8.7	4.8	3.7	9.3	4.3	3.9	7.9	10.2	5.2
09/08/2021	8.4	5.2	4.4	9.5	5.0	4.3	7.0	10.5	5.5
16/08/2021	8.1	5.5	4.9	9.6	5.1	4.5	7.1	10.4	5.7
23/08/2021	8.0	5.5	5.0	9.6	5.3	4.5	8.8	10.0	5.7
30/08/2021	8.5	5.8	5.2	9.4	5.5	4.5	6.4	9.9	5.9
06/09/2021	8.2	5.9	5.3	9.0	5.4	4.4	6.5	10.0	5.8
13/09/2021	8.5	5.8	5.1	8.4	4.9	4.2	6.9	9.4	5.6
20/09/2021	9.0	5.9	6.1	8.3	4.8	4.3	7.5	9.4	5.7
27/09/2021	9.3	6.0	6.3	8.1	4.5	4.3	7.2	10.3	5.7
04/10/2021	9.5	6.1	6.3	8.2	4.3	4.3	7.1	10.4	5.7
11/10/2021	9.2	6.1	6.4	7.9	3.8	4.2	6.1	10.0	5.5
18/10/2021	9.2	5.6	6.6	7.7	3.5	4.3	5.7	9.2	5.3
25/10/2021	9.4	5.0	7.1	7.6	3.3	4.0	5.6	9.0	5.1
01/11/2021	9.4	4.9	7.0	7.1	2.9	3.8	5.7	9.2	4.9
08/11/2021	9.5	5.0	6.8	7.0	3.2	4.0	5.0	9.6	5.0
15/11/2021	9.5	5.1	6.1	7.2	3.8	4.2	5.3	9.9	5.2
22/11/2021	9.6	5.3	6.0	7.7	4.6	4.6	6.1	9.9	5.6
29/11/2021	9.5	5.6	5.3	8.5	4.9	5.0	6.0	10.4	5.9
06/12/2021	9.0	5.7	5.1	8.2	4.9	5.5	6.0	10.8	6.0
13/12/2021	8.8	5.8	4.7	8.0	5.0	5.6	5.1	10.8	6.0
20/12/2021	8.1	5.5	4.4	7.7	4.7	5.7	5.3	9.9	5.9
27/12/2021	7.5	5.1	4.0	7.4	4.0	5.4	4.9	9.0	5.4
03/01/2022	7.3	4.9	3.4	6.5	2.8	5.1	4.5	8.5	5.0
10/01/2022	7.9	5.2	4.1	6.2	2.8	5.4	5.4	8.2	5.2
17/01/2022	8.5	5.7	4.9	6.4	3.8	5.8	6.4	8.5	5.7
24/01/2022	9.3	6.0	5.4	6.6	4.1	5.8	6.5	9.1	6.0
31/01/2022	10.3	6.2	6.3	6.8	5.2	5.8	6.7	9.6	6.4
07/02/2022	11.1	6.4	6.8	7.2	6.2	5.9	7.4	10.4	6.7

Incident One
28 July 2021 to 18 August 2021

Incident Two
27 October 2021 to 2 February 2022

Appendix Two: Red Cells – Lessons Learned Contributors

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