

# Collaborative Management of a Pre-Stem Cell Transplant Patient Requiring Rare Blood

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## Introduction

Myelofibrosis is a clonal myeloproliferative neoplasm of pluripotent haematopoietic stem cells, characterised by progressive bone marrow fibrosis, with anaemia typically present.



Patients with symptomatic anaemia often become transfusion dependent.

Stem cell transplant (SCT) is the only curative option.

Here we describe a patient with myelofibrosis selected for SCT with a rare blood requirement and the multidisciplinary approach to provide suitable red blood cell (RBC) units.

## Method



Red Cell Immunohaematology (RCI) received samples from a 53-year-old patient with myelofibrosis.

Discussion between NHSBT and Hospital Consultants identified that the patient had secondary myelofibrosis.



SCT was planned four months from referral.

Previous serology showed allo anti-s and allo anti-Do(b).



The percentage of the UK donor population antigen negative for s is 11% and Do(b) is 18%.<sup>1</sup>

Investigation also identified anti-Wr<sup>a</sup>, a clinically significant antibody against a low frequency antigen.

## Results



A search of NHSBT blood stocks did not identify any fresh Do(b-), s-, Wr(a-) RBC units.

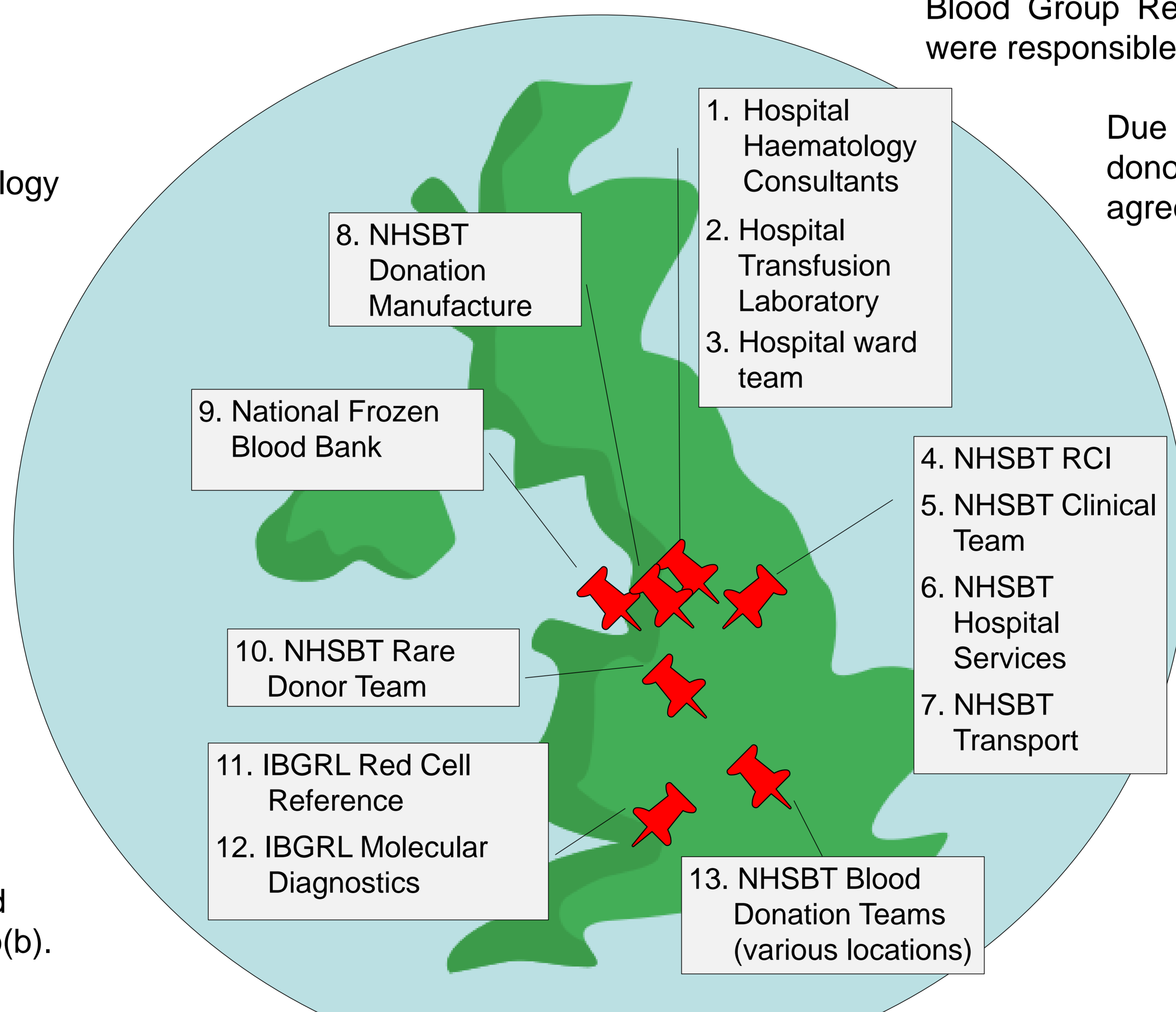


The National Frozen Blood Bank identified two Do(b-), s- units requiring Wr<sup>a</sup> phenotyping post thaw, risking wastage if not antigen negative.



A donor call-up was initiated by NHSBT's rare donor team.

Do(b) genotyping was required as there is no Do(b) phenotyping antisera. The International Blood Group Reference Laboratory (IBGRL) were responsible for this testing.



**Figure 1: Teams Contributing to the Transfusion Management of a Stem Cell Transplant Patient with a Rare Blood Group**

Due to the scarcity of eligible donors, the hospital and NHSBT agreed a Plan B:

### PLAN B

For use when no antigen negative units are available.

- Review current antibody activity.
- Remove requirement for s- or Do(b-) units, depending on current strength of antibody reactions.
- Monitor closely for a haemolytic transfusion reaction and mitigate with steroids and IVIg as appropriate.

Thirteen different teams from across England were involved in the transfusion management plan (see figure 1).

A small number of donors provided antigen matched units.

A stock of plan B units were kept on standby at the local NHSBT centre.

## Conclusion

A large number of different teams were needed to support the transfusion management of this patient requiring rare blood.

Transfusion with compatible RBC units was achieved through a multidisciplinary approach, with clear communication across organisational boundaries, effective teamwork and the support of suitably matched blood donors.

References:  
1. NHSBT (2022) *The Clinical Significance of Blood Group Alloantibodies and the Supply of Blood for Transfusion* [Online] [Accessed 28<sup>th</sup> August 2023] <https://nhsbt.blob.core.windows.net/umbraco-assets-corp/27978/spn-214-v5-the-clinical-significance-of-blood-group-alloantibodies-and-the-supply-of-blood-for-transfusion.pdf>

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