


# Major Haemorrhage

## A Laboratory Perspective

Several parallel white lines of varying thicknesses that originate from the bottom left and extend diagonally towards the top right, crossing behind the text.

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**Advanced Biomedical Scientist**

# Overview

- Major Haemorrhage at NUTH
  - Laboratory set up
  - Challenges
  - An example of an exceptional day
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- A series of several parallel white diagonal lines of varying lengths, located in the bottom right corner of the slide.

# Major Haemorrhage at NUTH

## Major Haemorrhage Pack (MHP) Algorithm

<b>Pack 1:</b>	4 RBC	4 FFP
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<b>Pack 2:</b>	4 RBC	4 FFP	2 Platelet
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<b>Pack 3:</b>	4 RBC	4 FFP	1 Platelet
	2 Cryoprecipitate pools		

- As soon as the box is taken the next is prepared
- MHP 3 continues until we are told to stand down

# Major haemorrhage at NUTH

## **RVI:**

- Emergency Department + Major Trauma centre (ED) 4 red cells are labelled and ready to pack.

Two sets are available:

- Group O D Positive for males and group O D negative for females / children.
- Where the patient is known and there is a valid sample group specific will be issued.

## **Freeman:**

No blood is “ready” – we just wait for the call.



# Laboratory Set Up

## **Routine Hours:**

- 3 Biomedical Scientists
- 1 Health Care Science Associate (HCSA)

## **Out of Hours:** (5pm-8.30am and weekends)


- 1 Biomedical Scientist (covering haematology and transfusion)
- 1 HCSA covering blood sciences (haematology, biochemistry, and transfusion).



# Challenges

Staffing: Training / inexperience of new staff

## **Training regime:**

- One to one training
  - Mentor + complete training portfolios
  - “Dummy” records
  - Competency question and answer / assessment
  - Difficult to re-create scenario for multiple haemorrhages.
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# Challenges


## Staffing: Maintaining morale

# Serious Hazards Of Transfusion (SHOT)- why do people make mistakes?



# Challenges

## **Available resources**

- MH boxes
  - Number of pre-conditioned cool packs
  - Laboratory space
  - Stock of RBCs
  - Wastage
  - Pre Thawed FFP
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# An Example Of A Not So Ordinary Day

- Cross-matching BMS newly qualified working alone on cross-matching.
- Busy: Overnight work included setting up of 3 transplants
  - Liver transplant (10 RBCs +2 platelets)
  - Double Lung (6 fresh RBCs +1 platelet)
  - Cardiac transplant (6 fresh RBCs + 1 platelet)

**04:10**      **Blood collected for Liver Transplant**  
(Patient A).

Recipient: A Neg

Donor liver: O Pos

FFP rolling programme begins

**06:00**      4 more FFP collected

Night shift team hand over to day team

**08:45**      4 RBCs and 4 FFP collected

**10:40** MH protocol activated FHEAS- Patient B  
bleeding from trachea

**10:42** Phone call to order Berriplex: patient  
has been on Warfarin.

**10:45** Box 1 collected  
Box 2 prepared  
8 FFP are defrosted  
2 stock platelets issued

More stock is ordered for lunchtime delivery

**11:00** 4 FFP collected Patient A (liver Tx)

**12:00** 4 RBCs and 4 FFP collected Patient A

## **Lunchtime**

**13:00** Blood collected for Heart Transplant  
(Patient C).

**13:30** Routine Stock delivery arrives



**14:40** MH protocol for patient D “bleeding in theatre from their Vena Cava.

**14:48** Box 1 collected.

Emergency order placed with NHSBT for 20 O RBCs, 6 platelets and 30 FFP.

Senior staff instruct cross-matching BMS to defrost more FFP to keep ahead

**15:04** Box 2 collected.

**15:25** Box 3 collected

## 5 pm handover

- Still waiting for stand down
- Both stock fridges and issue fridges were full of blood issued to Patients A-D
- Blood remained in fridge for double lung Tx (Patient E).

**18:00** ICCU activate MH protocol - PR bleed on ward (Patient F)

6 RBCs ordered

**18:05** MH box collected (contained only RBCs)

**18:20** 4 FFP collected.

More stock of RBCs and platelets ordered from NHSBT (Emergency collect)

**19:00** MH box 2 collected


**21:11** MH box 3 returned to lab – cryo. was wasted.

Patient	A	B	C	D	E	F
RBCs	22	8	6	12	6	12
4FFP	20	8	0	12	0	12
Platelets	3	2	1	3	1	3
Cryo.	0	0	0	2	0	2
Returned	0	0	0	1 PLT	ALL	1 PLT
Wasted	0	0	0	0	0	2 CRYO

- Over the course of the day: Multiple scenarios, multiple blood groups
- Challenges:
  - Prioritisation
  - Maintaining routine work flow for hospital
- 1 newly qualified member of staff



# Summary

- Received Thank you + Greatix from theatres
  - Feedback / debrief with team
  - Team work essential
  - Good communication is vital
  - Organisation- thinking ahead, staying calm
  - Reflection
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Thank you

