

# Case Study Matthew Hazell Red Cell Immunohaematology





# **Case Description**

- Sample referred to NHSBT "anaemia"
- Hb 41
- 2 units of blood requested
- RCI to XM as multiple antibodies
- On arrival standard investigations ABO Rh, K, ABID NHSBT Panel 1
   IAT + Enzyme

Panel 1 – BRIAT and Enzyme IAT

**NHS**Blood and Transplant

												Idiispid						
	Rh	M	N	S	S	P1	Lu <sup>a</sup>	K	k	Kpª	Lea	Le <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jka	Jkb	BRIAT	EIAT
1	R1 <sup>w</sup> R1	0	+	0	+	3	0	0	+	0	+	0	0	+	0	+	2	4
2	R1R1	+	0	+	0	0	0	+	+	0	0	0	+	0	+	0	2	2
3	R2R2	0	+	0	+	2	0	0	+	0	0	+	+	0	0	+	0	3
4	r'r	0	+	+	+	4	0	0	+	0	+	0	+	0	0	+	2	2
5	r"r	+	0	+	0	0	0	0	+	0	0	+	0	+	+	0	2	3
6	rr	+	+	+	0	3	0	+	0	0	0	+	0	+	0	+	2	2
7	rr	0	+	0	+	0	0	+	+	0	0	+	0	+	+	0	0	2
8	rr	+	0	+	0	3	0	0	+	+	+	0	0	+	0	+	2	2
9	rr	+	0	0	+	2	+	0	+	0	+	0	+	0	0	+	0	2
10	rr	0	+	+	0	1	0	0	+	0	0	+	+	0	+	0	2	2
Auto	N/A																W	

Cw S Ε Panel 1 – BRIAT and Enzyme IAT **Blood and Transplant BRIAT** (Kp<sup>a</sup> EIAT Lea Rh R1<sub>w</sub>R1 2 0 3 0 0 0 0 4 + + + + + + F(1)R1 2 0 0 0 0 0 0 0 0 0 2 + + + + + R2R2 3 0 2 0 0 0 0 0 0 0 3 + + + + + + 0 r'r 4 0 0 0 0 0 0 4 + + + + + r<mark>"</mark>r 5 0 0 0 0 0 0 0 0 0 2 3 + + + + + 6 rr 3 0 0 0 0 0 2 + + + 0 0 0 2 0 8 0 3 0 0 0 2 rr 0 0 0 + + + + + + 9 0 0 0 rr 0 0 + + 0 + 10 2 rr 0 0 0 0 0 + + + Auto N/A W



Group O, D positive K negative – anti Cw, E and S

- 1. Xmatch units ABO Rh and K compatible, negative for allo antibodies
- 2. Repeat panel 1
- 3. Full phenotype the patient
- 4. Consult historical results from the patient
- 5. Use another panel to exclude anti C, Kpa, Jkb
- 6. Send sample to IBGRL





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	Panel 2						S/C <sup>w</sup>		S		S/E		NHS					
																		ransplant
	Rh	M		S	6		L U <sup>a</sup>	1		Κpa	Lea	Leb	Ţva	γν <sub>p</sub>	Jka	Jkb (	BRIAT	
1	R1 <sup>w</sup> R1	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0	2	
2	R1R1	0	/	0	+	2	0	+	+	0	0	+	0	X	0	1	0	
3	R2R2	+	0	+	0	2	0	0	+	0	+	0	+	0	0	+	2	
4	r'r	+	0	+	0	2	0	0	+	0	0	+	0	+	0	+	2	
5	r"r	0	+	0	+	2	0	0	+	0	0	1	0	W	X	0	0	
6	rr	+	0	+	0	4	0	+	0	0	0	+	+	+	0	+	2	
7	AL.	1	0	0	+	1	1	X	+	0	4	0	0	+	+	0	0	
8	rr	0	+	0	1	A	0	0	1	1	0	+	1	0	+	0	0	
9	rr	0	+	+	0	0	0	0	+	0	+	0	0	+	0	+	2	
10	rr	0	+	0	+	2	+	0	+	0	+	0	+	0	0	+	0	
Auto	N/A																W	

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# Decision.....



# Xmatch units ABO Rh and K compatible, negative for allo antibodies

Group O, D positive – anti Cw, E and S

What blood to give?

- Dish out emergency units group O D K negative
- 2. ABO Rh and K compatible
- 3. ABO Rh and K compatible negative for S and E
- 4. ABO Rh and K compatible negative for Cw, S and E
- 5. ABO Rh and K compatible Negative for Wr<sup>a</sup> (I have heard this can cause real problems in some patients.....)



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# Consult patient history – anti – k and Jka on file.....



Group O, D positive – anti Cw, E and S

- Dish out emergency units group O D K negative
- 2. Search national blood stocks for units
- 3. Ignore the historical antibodies and go
- 4. Curl up in the corner of the lab and rock gently
- 5. Contact RCI On-call Consultant for support from frozen stocks



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# What happened



- Anti C<sup>w</sup>, E, S, [k and Jk<sup>a</sup> Historic]
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  - Frozen units available E, S, k and Cw negative but Jka positive
  - 6 hour turn-around to supply from frozen bank.... Thaw process and ship from Liverpool

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  - Frozen units available E, S, k and Cw negative but Jka positive
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- Hospital contact
  - Hb has dropped to 31g/L Hospital now wants 6 units

# What next?

**NHS**Blood and Transplant

Anti – Cw, E, S, [k and Jka Historic]

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- 2. ABO Rh and K compatible
- 3. ABO Rh and K compatible negative for S and E
- 4. ABO Rh and K compatible negative for E and Jk<sup>a</sup>
- 5. ABO Rh and K compatible negative for S and Jk<sup>a</sup>
- 6. Wait for frozen units E, S, k and C<sup>w</sup> negative Jk<sup>a</sup> positive



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NHS
Blood and Transplant

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Anti – Cw, E, S, [k and Jka Historic]

RCI Consultant – Recommended O D K positive, E and S negative for emergency with IVIG and steroids to cover

Do you agree?

- 1. Yes
- 2. No



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#### No

No blood available that is O D positive E, S Jka k negative or E, S, k negative or E, S, Jka negative

Also, k and Jk<sup>a</sup> was historic.... E and S are present... would you really avoid these antibodies in choice of historic?



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Those that said no, do you still disagree with emergency blood provision advice?

- 1. Yes
- 2. No



# What is the answer?



# What happened....

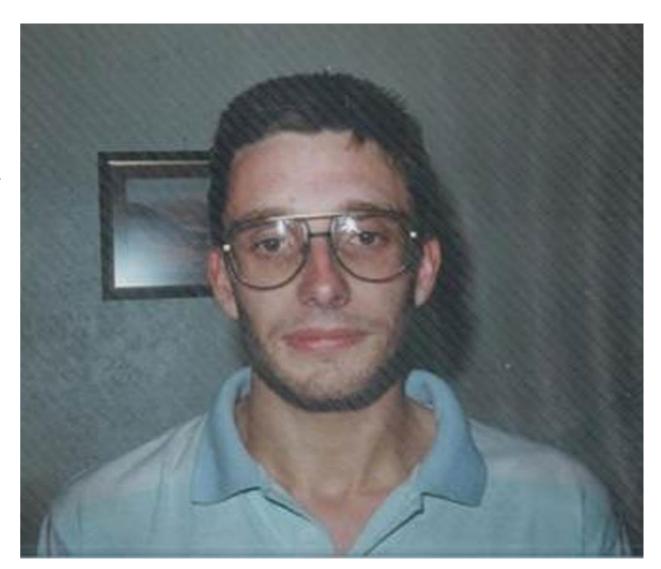
**NHS**Blood and Transplant

- Patient has a GI bleed in combination with Iron deficiency anaemia
- Patient responds well to EPO and iron, and tolerates a low Hb – 40 to 50 g/L, turn up in A&E at this point
- Hospital monitored closely and were able to wait for frozen bank
- Ongoing treatment to give EPO and Iron to maintain Hb
- Patient doesn't attend clinic......



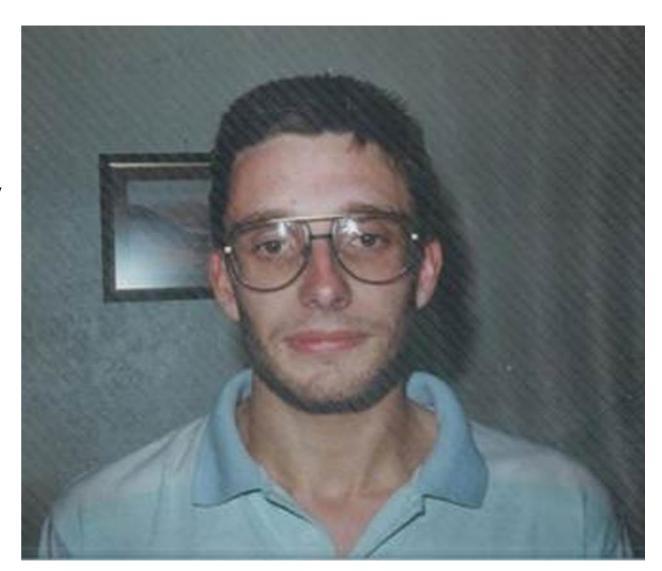


- 1. It's the patients choice... withdraw all support
- 2. Transfuse immediately with emergency blood when the patient turns up next
- 3. Pray Patient doesn't come to you're A&E
- 4. Replenish frozen stocks ready for next time the patient turns up
- 5. Apply for a job at another hospital





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# Solution



- Built a 12 unit stock in frozen bank that match requirements
- Open communication between Hospital and NHSBT
- Patient discussed monthly at consultant meetings
- It has taken 5 months to get to 11 units in frozen bank
- Patient has arrived in A&E 3 times with low Hb location of bleed has not been identified and patient is still not attending clinic for EPO and iron treatment



# Take home messages



- Open communication between Hospital and NHSBT as well as inter – department communication is critical to good patient outcome!
- Future planning is important to maintain patient treatment in the presence of multiple antibodies resulting in need for rare blood
- Decisions for blood transfusion in emergency situations can be controversial
- No blood can be a worse decision in low Hb state, than blood that is not compatible with clinically significant allo-antibodies.







# Thanks for listening