

Red Cell Immunohaematology

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What is RCI?

- National support for Transfusion Laboratories
- RCI labs located in Blood Centres in Birmingham, Bristol (Filton), London (Collindale, Tooting), Liverpool and Sheffield
- Liverpool hosts the NFFB and reagents
- Filton hosts the IBGRL
- Majority of blood transfusions can be facilitated by hospitals, BUT..



BCSH Guidelines 2012..

- If there is any doubt concerning the identity of any antibodies present, or the ability to exclude clinically significant antibodies, a sample should be sent to a red cell reference laboratory.
- Laboratories that are not registered for antibody investigation in an accredited external quality assurance scheme should refer samples from all patients that have given positive results in the antibody screen to a laboratory that is registered for antibody identification.

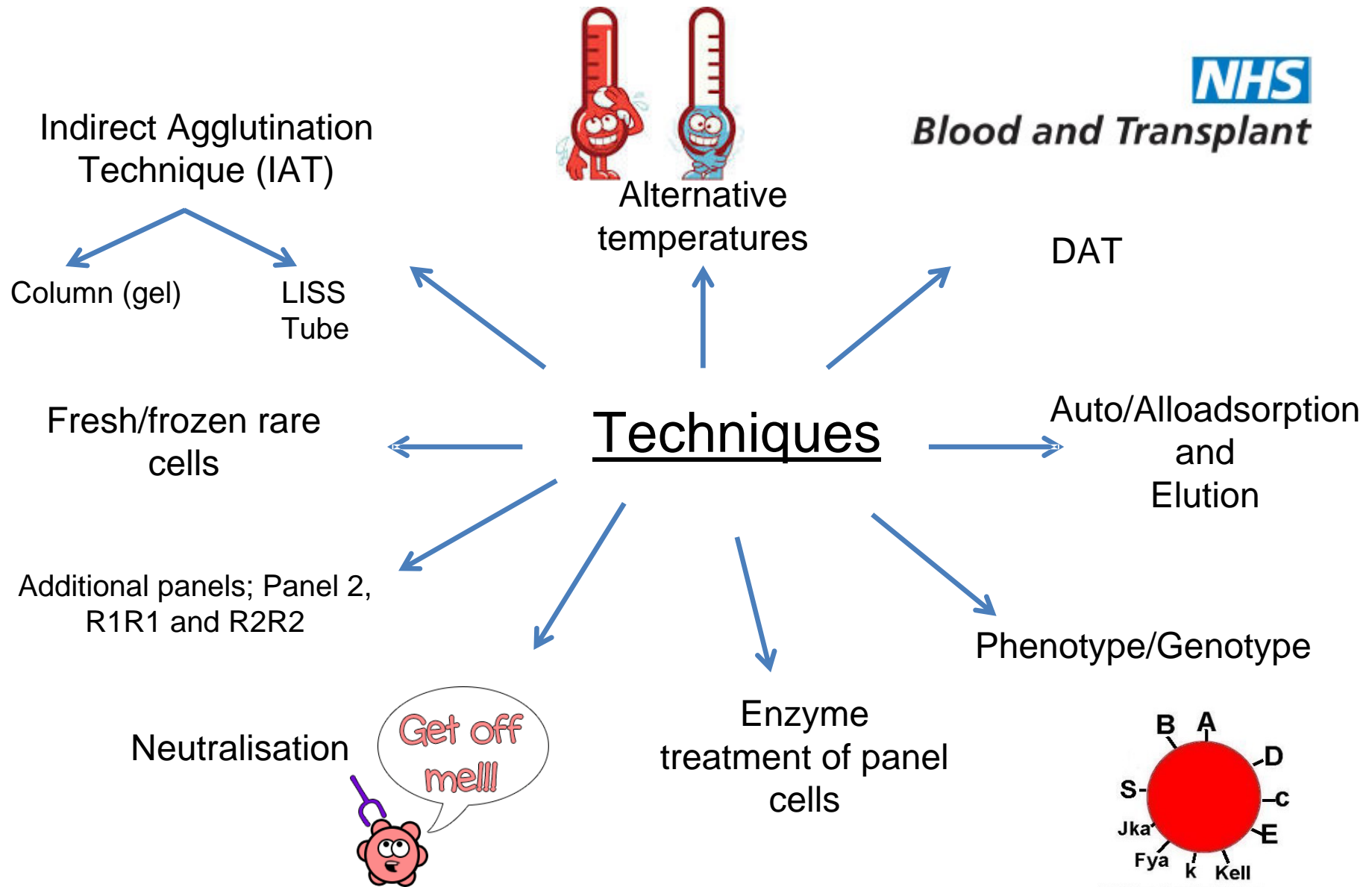
BCSH Guidelines 2012..

- If a patient is known to have (ever) formed a red cell alloantibody, each new sample must be fully tested to exclude the presence of further alloantibodies.
- When one antibody specificity is detected it is essential that the presence or absence of additional clinically significant alloantibodies is established.



Why Refer to RCI?

- Rare/ Anomalous ABO/ D blood grouping
- Antibody Confirmation/ Identification
- Complex mixtures of antibodies
- Antenatal Investigations;
 - Quantification and titration
 - FMH Investigation
 - Provision of suitable blood for delivery/IUT
- AIHAs/ DAT positive patients
- Suspected Haemolytic Transfusion Reactions
- Advice!
- Panic?



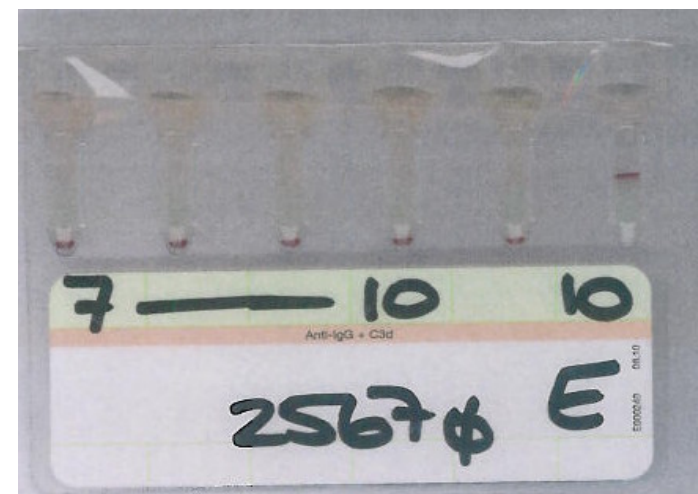
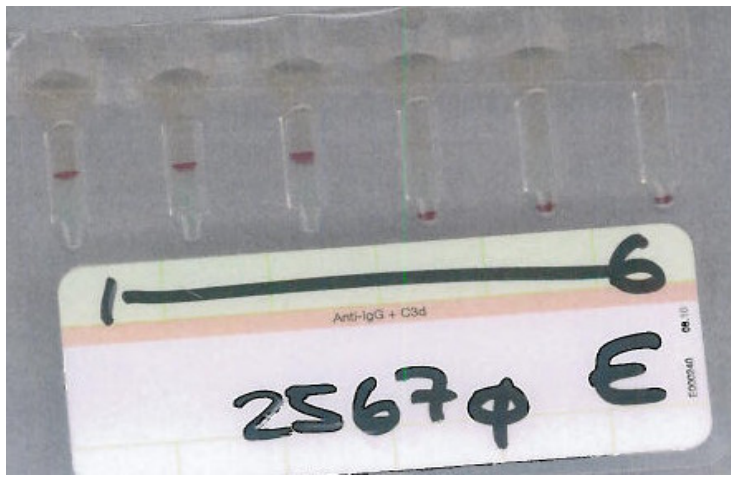
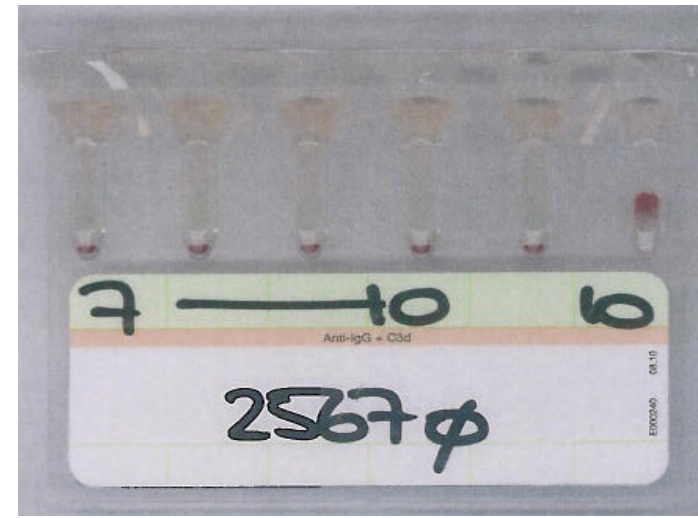
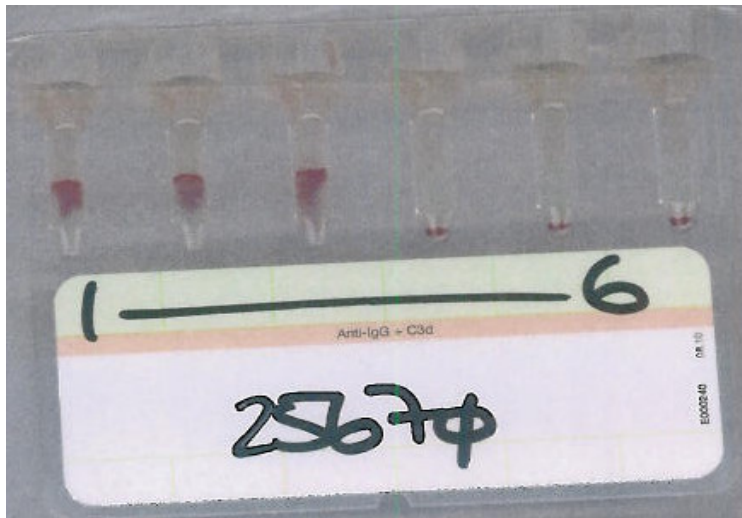
- Via [NHSBT Liverpool](#) and in liaison with the [International Blood Group Reference Laboratory \(IBGRL\)](#) RCI have access to additional reagents that may not be available to Hospital Labs;
 - Reference antibody identification panels
 - Rare cells to confirm or exclude specificity
 - Rare antisera for phenotyping
 - National Frozen Cell Bank
 - National / international rare cell exchange
 - WHO International Rare Cell Donor Panel

- Antibody specificity should only be assigned when the plasma is reactive with at least 2 examples of reagent red cells expressing the antigen and non-reactive with at least 2 examples of reagent red cells lacking the antigen.
- When one antibody specificity has been identified, it is essential that the presence or absence of additional clinically significant antibodies should be established. This can be demonstrated by choosing reagent red cells that are negative for the recognised specificity but positive for other antigens to which clinically significant antibodies may arise.

BCSH Guidelines 2012..

- Failure to recognise all of the antibody specificities within a sample can lead to a haemolytic transfusion reaction. Specificities should be excluded using red cells having **homozygous expression** of the relevant antigen. A **single example** only of each phenotype is sufficient for exclusion.

Example Cases



Antibody Investigation Worksheet

[illegible]

offspring. *Version 01.04*

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Have a go yourself!

Antibody Investigation Worksheet

Pipette batch No's

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Reference Panel 1 Worksheet

[illegible]

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Antibody Investigation Worksheet

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NHSBT Reagents Panel 1

Antibody Investigation Worksheet

Sample Name		Requestor		Database Ref No.		Tested by																
Date of Birth		Hosp no		Sample No.		Date Tested																
Product		Lot No.		Product		Lot No.																
Panel in Alsevers		R144 3312		Panel in CellStab		R143 3312																
Panel Papainised in Alsevers		R154 3312		Panel Papainised in CellStab		R153 3312																
Product		Lot No.		Product		Lot No.																
Panel in LISP		R163 3312		Panel in LISP		R146 3312																
EXPIRY DATE: 2014.12.11																						
	Rh	M	N	S	s	P1	Lu ^a	K	k	Kp ^a	Le ^a	Le ^b	Fy ^a	Fy ^b	JK ^a	JK ^b	Other	IAT	EN2	PNW/TABE/IAT-3TC	SAL	QTC
1	R ₁ ^w R ₁	0	+	0	+	3	0	0	+	0	0	+	+	0	0	+		0	0	0		0
2	R ₁ R ₁	+	0	+	0	2	0	+	+	0	0	+	0	+	+	0		3	0	0		3
3	R ₂ R ₂	0	+	0	+	0	0	0	+	0	0	+	0	+	0	+		0	0	0		0
4	r'r	0	+	0	+	5	0	0	+	0	0	0	+	+	0	+		0	0	0		0
5	r''r	+	0	+	0	2	0	0	+	0	+	0	+	0	+	0	Rg-	3	0	0		3
6	rr	+	+	0	+	2	0	+	0	0	0	+	0	+	+	0	Chido-	1	0	0		2
7	rr	0	+	0	+	3	0	+	+	0	+	0	+	0	0	+		0	0	0		0
8	rr	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	0	0		3
9	rr	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		0	0	0		0
10	rr	0	+	0	+	3	+	0	+	0	0	0	+	0	+	0		0	0	0		0
Auto																						
Antibody Titre												Group		Pheno								
Dilution												BRND POS		C ⁺ E ⁺ E ⁻ K ⁻								
Anti-												Conclusion PATIENT 4: 45 YR OLD MALE SEEN WITH BLOOD GROUPING DISCREPANCY (SEE ATTACHED)										
Archive																						
Anti																						
Archive																						
DAT Batch No												Entered into Database by:.....										
PS		IgG		IgA		IgM		C3c		C3d		Ctl		Authorised by:.....								
Reagent																						
Batch No's																						

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Anti-A	Anti-B	Anti-Di	ANTI D 2	A1 cells	B cells
0	5	5	5	5	3

Controls	Arr	5	0	0	0
	Brr	0	5	0	0
	OR1r	0	0	5	5

Antibody Investigation Worksheet

[illegible]

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Any Questions?