How to use RCI Assist Referral Support Tool

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Case study examples

- Please use the slides to learn how to navigate RCI Assist
- 5 case examples with panels have been provided
- Work your way through each case to practice using the tool
- The outcome will vary depending on what reagents you have available in your laboratory
- If you require any assistance or advice, please contact helen.thom@nhsbt.nhs.uk

RCI Assist

Transfusion 2024

NHS Blood and Transplant

What is RCI Assist?

As part of the integrated transfusion services strategic plan for Transfusion 2024, a referral support tool, RCI Assist, has been developed.

RCI Assist guides users when processing samples in the Hospital Transfusion Laboratory (HTL). RCI Assist contains decision points to either refer cases to Red Cell Immunohaematology (RCI) or resolve in-house and is supported with pop up information to improve HTL staff confidence.

Pathways include:

- Grouping
- Antibody Identification
- Antenatal
- Panreactives
- Elution
- Transfusion

Scan here to see how to navigate RCI Assist

How it works:

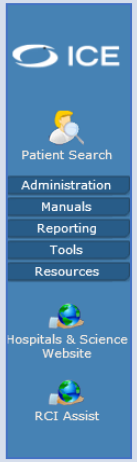
YES NO — To move through the pathways, select the yes or no options next to the question boxes

Elutions — To jump straight to a section, select the required tab

To get supporting information about a topic, click the information icon

Input result on LIMS — Reach a decision point and either refer to RCI or result in-house

Accessing RCI Assist:



RCI Assist is available as a link in Sp-ICE and OBOS

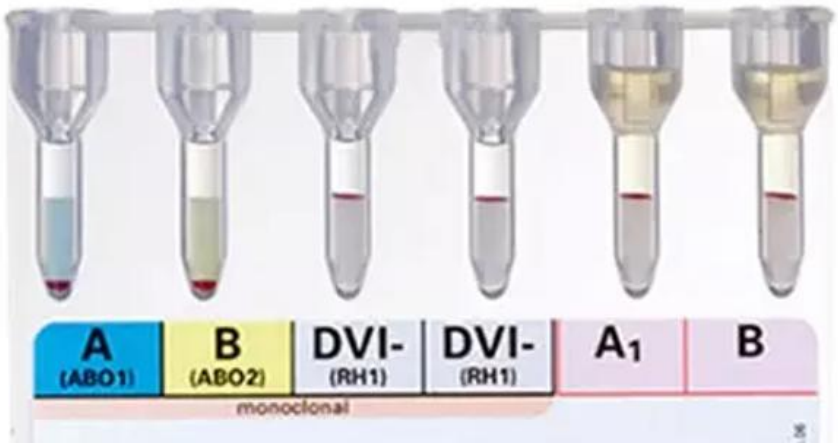
Log in with your usual credentials

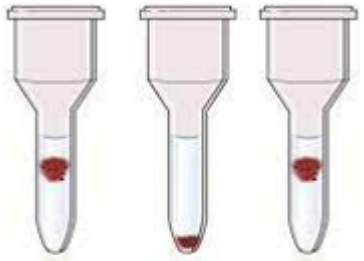
Help Files - OBOS User Guide and Presentation | Component Portfolio | RCI Assist

For further information on RCI Assist, please visit the NBTC website or email transfusion2024@nhsbt.nhs.uk

Example A

- 62-year-old female
- Group & Screen
- 2 units RBC
- “Anaemia”
- Not previously seen by your lab, but transfused at another hospital 5 years ago
- No historical antibodies
- Not previously seen by RCI





Patient group & screen results

Is ABO and D group interpretable?

YES

NO

Is ABO and D group interpretable?

NO

Click to learn more

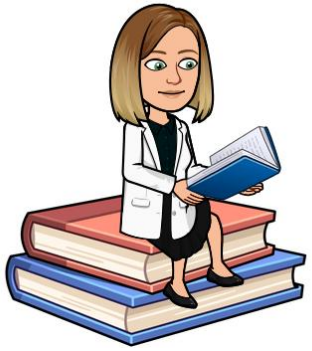
Is ABO and D group interpretable?

Forward and reverse ABO groups match in accordance with Landsteiner's Law.

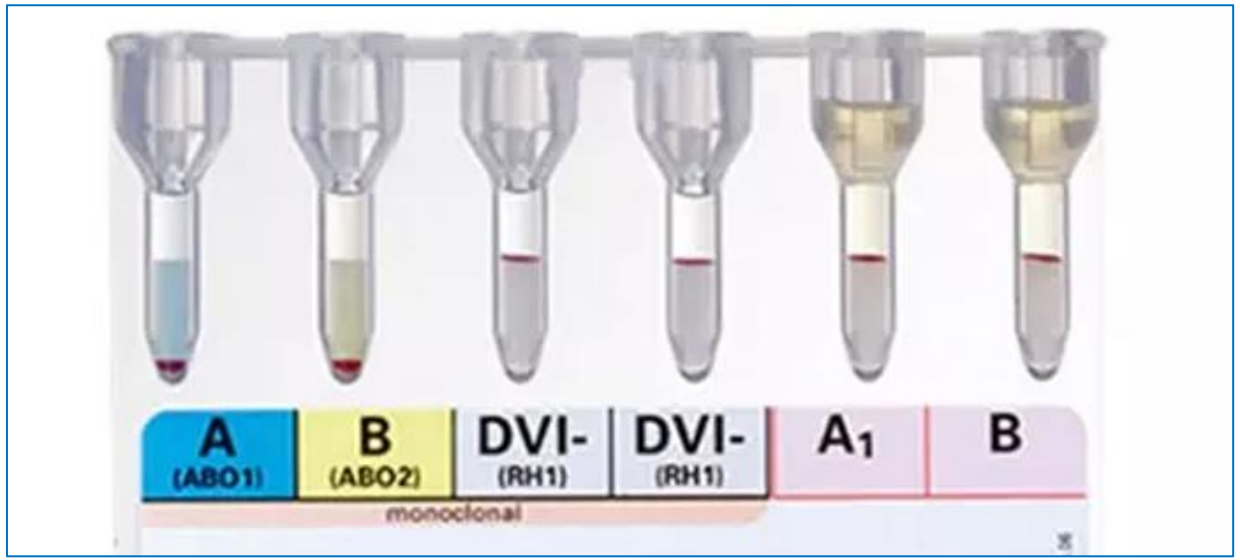
Note: Neonate groups are considered 'interpretable' from forward group only.

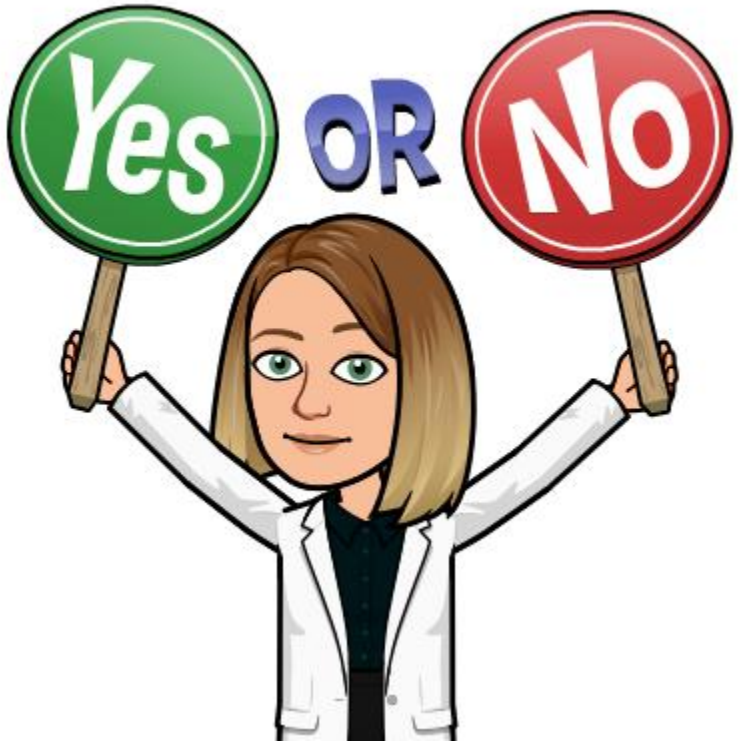
ABO forward group and D group show strong positive (3+/4+) reactions. Reverse group reactions may be weaker.

"For whichever ABO antigen is not present on the red cells, the corresponding antibody is found in the plasma"



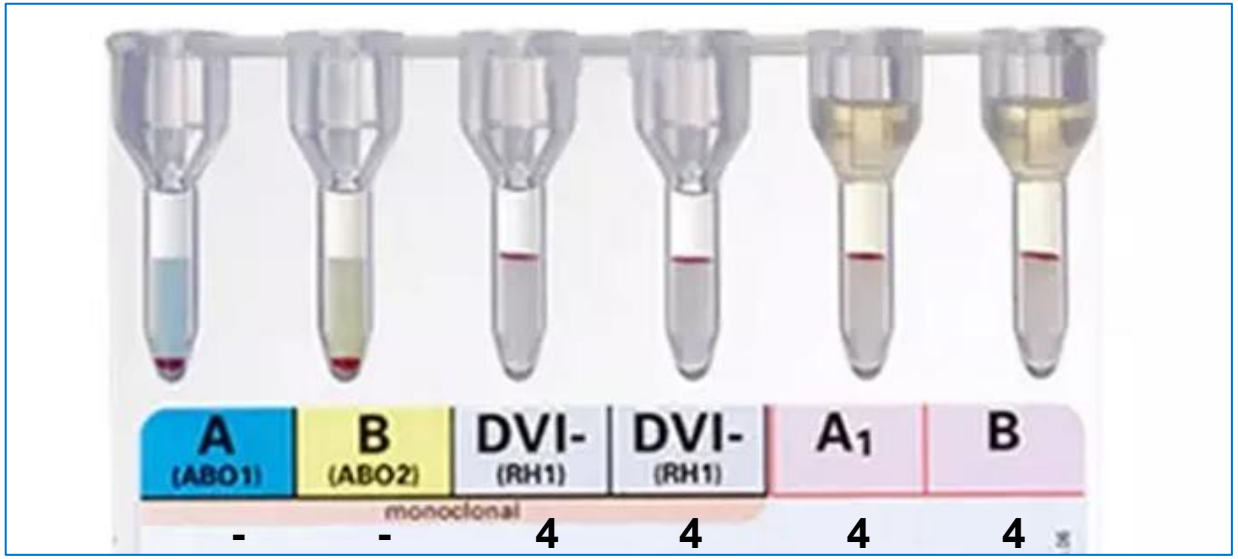
Is the ABO and D group interpretable?





Is the ABO and D group interpretable?

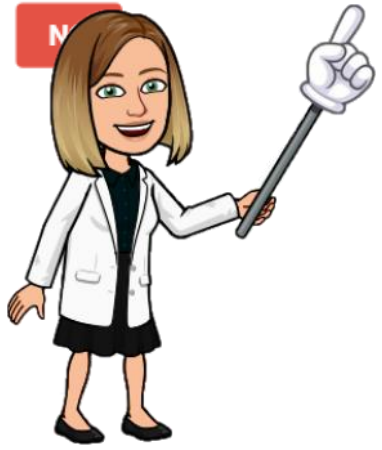
The forward and reverse ABO group match in accordance with Landsteiner's law and the D group shows strong positive reactions



Is ABO and D group interpretable?

YES

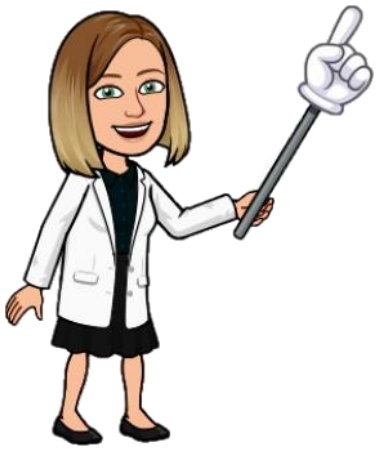
N



Is ABO and D group interpretable?

YES → Go to Antibody ID section

NO



Is antibody screen positive?

YES

NO

Is antibody screen positive?

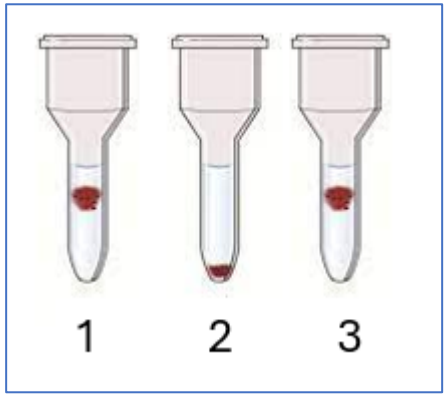
NO

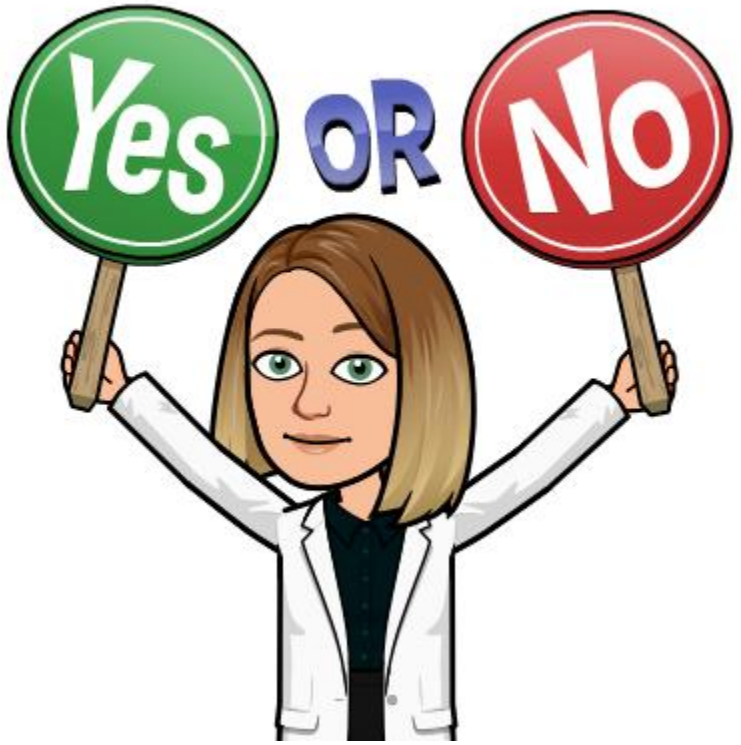
Click to learn more

Is antibody screen positive?

Positive result obtained by Indirect Antiglobulin Test (IAT) antibody screen.

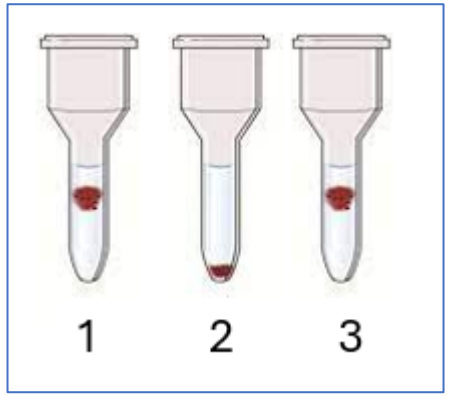
Is the antibody screen positive?





Is the antibody screen positive?

Positive result obtained by IAT

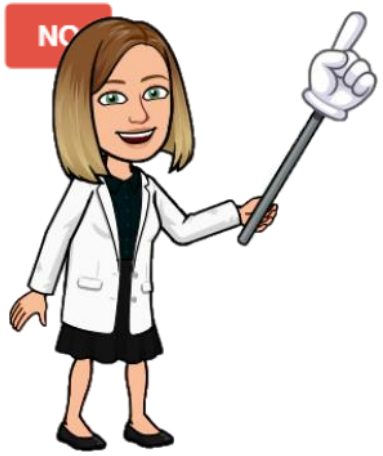


	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other
1	$R_1^WR_1$	+	+	0	0	+	+	+	+	+	0	+	+	+	0	0	+	+	+	0	+	3
2	R_2R_2	0	+	+	+	0	0	0	+	0	+	+	0	+	+	0	+	0	+	0	+	0
3	rr	0	0	0	+	+	0	+	0	0	+	0	0	+	0	+	0	+	0	+	0	3

Is antibody screen positive?

YES

NO



Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Is antibody screen positive?

YES

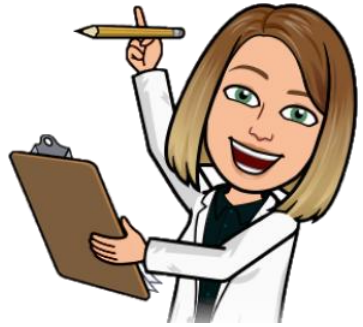
NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO



Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

NO

Click to learn more

Check Patient History
Does patient have a known antibody?

Has this patient previously been tested and found to have red cell antibodies?

62-year-old female

Group & Screen

2 units RBC

“Anaemia”

Not previously seen by your lab, but transfused at another hospital 5 years ago

No historical antibodies

Not previously seen by RCI

Is antibody screen positive?

YES

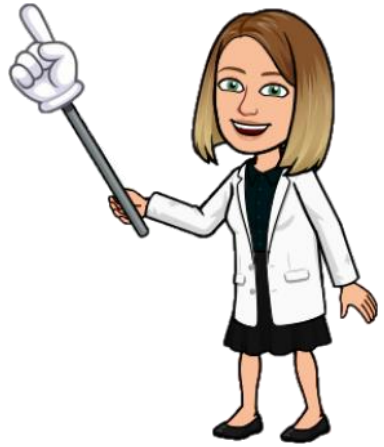
NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO



Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

Is antibody screen positive? — YES → **Check Patient History** Does patient have a known antibody? — YES → Refer to RCI (5)

NO

NO → Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

NO

Click to learn more

Perform antibody ID on primary panel

Perform the primary antibody identification panel used in your laboratory in accordance with manufactures' guidelines and your local procedures.

Antibody identification

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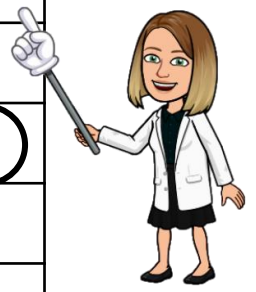
NHS Blood and Transplant

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		2	0
2	R_1R_1	+	+	0	0	+	0	+	0	+	0	0	+	+	0	+	0	0	+	0	+		3	3
3	R_2R_2	+	0	+	+	0	+	0	+	0	0	0	0	+	0	+	0	0	+	+	+		2	0
4	r'r	0	+	0	+	+	0	+	+	0	0	0	0	+	0	0	+	0	+	+	0		0	0
5	r''r	0	0	+	+	+	0	+	0	+	4	0	0	+	0	0	+	+	0	+	+		0	0
6	rr	0	0	0	+	+	+	0	+	0	4	+	+	0	0	0	+	+	0	0	+		3	3
7	rr	0	0	0	+	+	0	+	0	+	2	0	+	+	0	+	0	0	+	+	0		3	3
8	rr	0	0	0	+	+	0	+	0	+	0	0	0	+	+	0	+	0	+	+	+		0	0
9	rr	0	0	0	+	+	+	0	0	+	2	0	0	+	0	+	0	+	0	+	0		2	0
10	rr	0	0	0	+	+	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0		0	0
																						Auto	0	/
																						+ control	2	/

Probable anti-K and anti-M
Have not excluded anti-Jkb and Lua



Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

Possible anti-M and anti-K

Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

Is antibody screen positive?

YES

NO

Check Patient History
Does patient have a known antibody?

YES

NO

Refer to RCI (5)

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

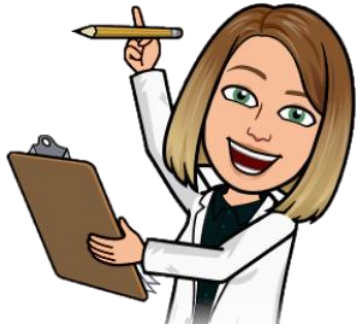
NO to 1 or 2

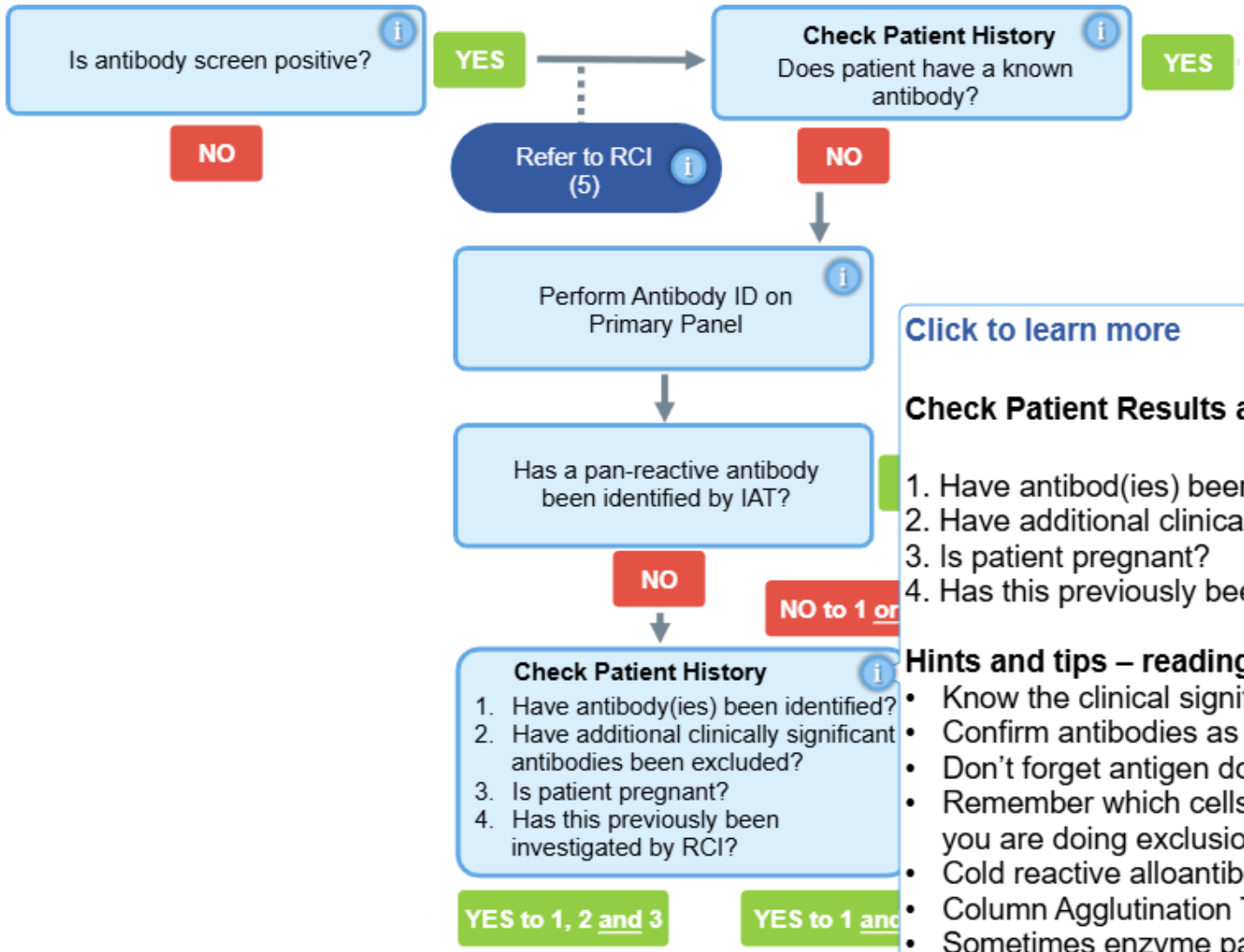
Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2





Click to learn more

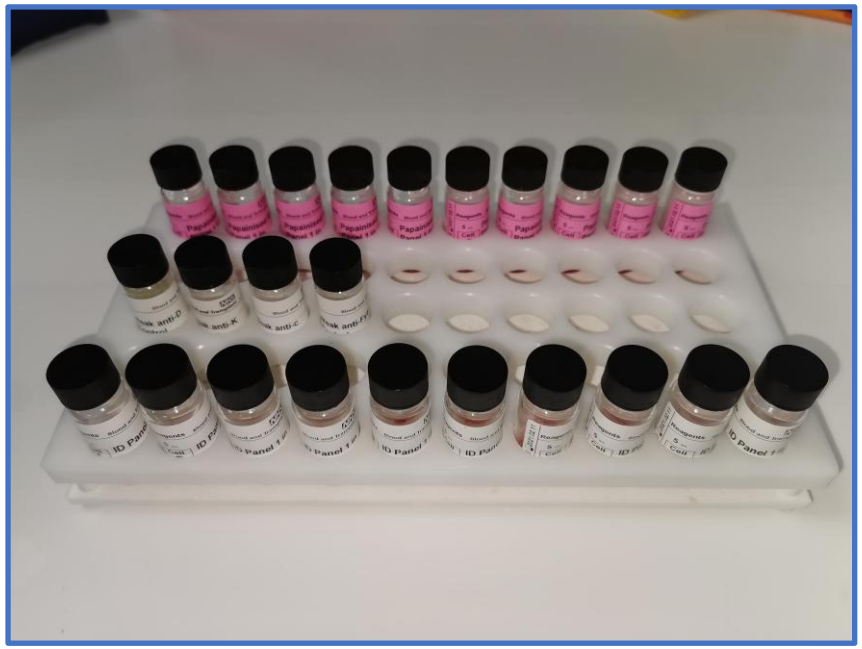
Check Patient Results and History

1. Have antibod(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

Hints and tips – reading and interpreting antibody ID panels

- Know the clinical significance of antibodies (read BSH guidelines)
- Confirm antibodies as alloantibodies (antigen phenotyping)
- Don't forget antigen dosage of cells
- Remember which cells are destroyed by enzyme which is worth considering when you are doing exclusions
- Cold reactive alloantibodies may react by IAT (E.g. Lewis and M antibodies)
- Column Agglutination Technology (CAT) can be prone to non-specific reactions
- Sometimes enzyme pan-reactivity causes non-specific reactivity in IAT. In such cases, please ensure that you can exclude all clinically significant antibodies by IAT.

Antibody Inclusion



- Consist of red cells from eight or more group O donors
- For commonly encountered clinically significant alloantibodies: 2 antigen pos and 2 antigen neg cells
- 1 x R1R1 (CCDDee) and 1 x R1wR1 (CwCDDee)
- Between them, these two cells should express the antigens K, k, Fya, Fyb, Jka, Jkb, S, s
- One example of each of the phenotypes R2R2 (ccDDEE), r′r (Ccddee) and r″r (ccddEe)
- At least three examples of the phenotype rr (ccddee), including at least one K+, and collectively, homozygous expression of k, Jka, Jkb, S, s, Fya, and Fyb

https://b-s-h.org.uk/guidelines/guidelines/pre-transfusion-compatibility-procedures-in-blood-transfusion-laboratories/

Antibody Exclusion

- 6.2.5.When one antibody specificity has been identified, it is essential that the presence or absence of additional clinically significant antibodies is established
- 6.2.6.Failure to recognise all of the antibody specificities within a sample may lead to a haemolytic transfusion reaction (SHOT, 1996–2010). In particular, the presence of anti-Jk^{a}, anti-Jk^{b}, anti-S, anti-s, anti-Fy^{a} and anti-Fy^{b} should be excluded using red cells having homozygous expression of the relevant antigen
- A single example only of each phenotype is sufficient for exclusion

https://b-s-h.org.uk/guidelines/guidelines/pre-transfusion-compatibility-procedures-in-blood-transfusion-laboratories/

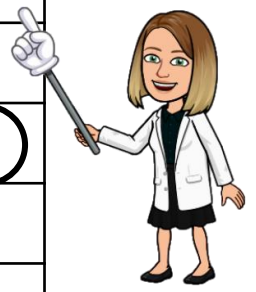
Antibody identification

Transfusion 2024

NHS Blood and Transplant

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		2	0
2	R_1R_1	+	+	0	0	+	0	+	0	+	0	0	+	+	0	+	0	0	+	0	+		3	3
3	R_2R_2	+	0	+	+	0	+	0	+	0	0	0	0	+	0	+	0	0	+	+	+		2	0
4	r'r	0	+	0	+	+	0	+	+	0	0	0	0	+	0	0	+	0	+	+	0		0	0
5	r''r	0	0	+	+	+	0	+	0	+	4	0	0	+	0	0	+	+	0	+	+		0	0
6	rr	0	0	0	+	+	+	0	+	0	4	+	+	0	0	0	+	+	0	0	+		3	3
7	rr	0	0	0	+	+	0	+	0	+	2	0	+	+	0	+	0	0	+	+	0		3	3
8	rr	0	0	0	+	+	0	+	0	+	0	0	0	+	+	0	+	0	+	+	+		0	0
9	rr	0	0	0	+	+	+	0	0	+	2	0	0	+	0	+	0	+	0	+	0		2	0
10	rr	0	0	0	+	+	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0		0	0
																						Auto	0	/
																						+ control	2	/

Probable anti-K and anti-M
Have not excluded anti-Jkb and Lua



What would you do next?

Good suggestions!

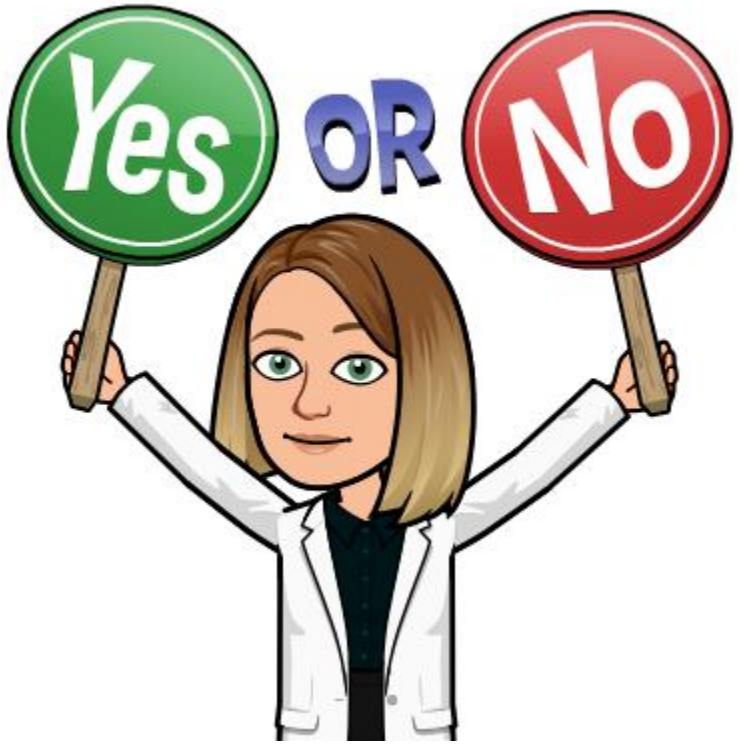
Antibody screen

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	IAT
1	$R_1^wR_1$	+	+	0	0	+	+	+	+	+	0	+	+	+	0	0	+	+	+	0	+	3
2	R_2R_2	0	+	+	+	0	0	0	+	0	+	+	0	+	+	0	+	0	+	0	+	0
3	rr	0	0	0	+	+	0	+	0	0	+	0	0	+	0	+	0	+	0	+	0	3

Have now excluded anti-Jkb

What about anti-Lua?

Is anti-Lua clinically significant?



TRANSFUSION MEDICINE
Official Journal of the British Blood Transfusion Society

British Blood Transfusion Society

Transfusion 2024

NHS Blood and Transplant

BSH Guidelines – clinical significance of red cell antibodies

System	Specificity	Likely clinical significance in transfusion
Kell	Anti-K	Yes
MNS	Anti-M (active at 37°C)	Yes
Lu	Anti-Lu^a	No

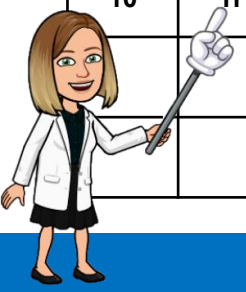
Antibody identification

Transfusion 2024

NHS Blood and Transplant

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		2	0
2	R_1R_1	+	+	0	0	+	0	+	0	+	0	0	+	+	0	+	0	0	+	0	+		3	3
3	R_2R_2	+	0	+	+	0	+	0	+	0	0	0	0	+	0	+	0	0	+	+	+		2	0
4	r'r	0	+	0	+	+	0	+	+	0	0	0	0	+	0	0	+	0	+	+	0		0	0
5	r''r	0	0	+	+	+	0	+	0	+	4	0	0	+	0	0	+	+	0	+	+		0	0
6	rr	0	0				+	0	+		+	+	+	0	0	0	+	+	0	0	+		3	3
7	rr	0	0	0	+	+	0	+	0	+	2	0	+	+	0	+	0	0	+	+	0		3	3
8	rr	0	0	0	+	+	0	+	0	+	0	0	0	+	+	0	+	0	+	+	+		0	0
9	rr	0	0	0	+	+	+	0	0	+	2	0	0	+	0	+	0	+	0	+	0		2	0
10	rr	0	0	0	+	+	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0		0	0
																						Auto	0	/
																						+ control	2	/

Anti-K and anti-M
Not excluded anti-Lua



62-year-old female

Group & Screen

2 units RBC

“Anaemia”

Not previously seen by your lab, but transfused at another hospital 5 years ago

No historical antibodies

Not previously seen by RCI

Check Patient Results and History

✓ 1. Have antibod(ies) been identified?
✓ 2. Have additional clinically significant antibodies been excluded?
✗ 3. Is patient pregnant?
✗ 4. Has this previously been investigated by RCI?

Hints and tips – reading and interpreting antibody ID panels

- Know the clinical significance of antibodies (read BSH guidelines)
- Confirm antibodies as alloantibodies (antigen phenotyping)
- Don’t forget antigen dosage of cells
- Remember which cells are destroyed by enzyme which is worth considering when you are doing exclusions
- Cold reactive alloantibodies may react by IAT (E.g. Lewis and M antibodies)
- Column Agglutination Technology (CAT) can be prone to non-specific reactions
- Sometimes enzyme pan-reactivity causes non-specific reactivity in IAT. In such cases, please ensure that you can exclude all clinically significant antibodies by IAT.

Is antibody screen positive?

YES

Check Patient History
Does patient have a known antibody?

YES

NO

Refer to RCI (5)

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2

Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

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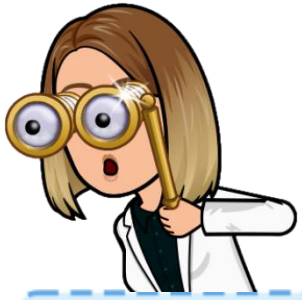
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)



Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

Has patient been transfused in last 3 months?

NO

YES

RCI Assist

Grouping | Antibody ID | Antenatal | Panreactives | Elutions | Transfusion

Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)

Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

NO

Has patient been transfused in last 3 months?

YES

62-year-old female

Group & Screen

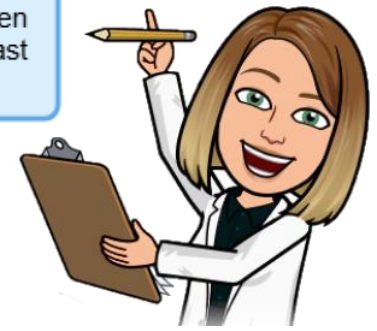
2 units RBC

“Anaemia”

Not previously seen by your lab, but transfused at another hospital 5 years ago

No historical antibodies

Not previously seen by RCI



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Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)

Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

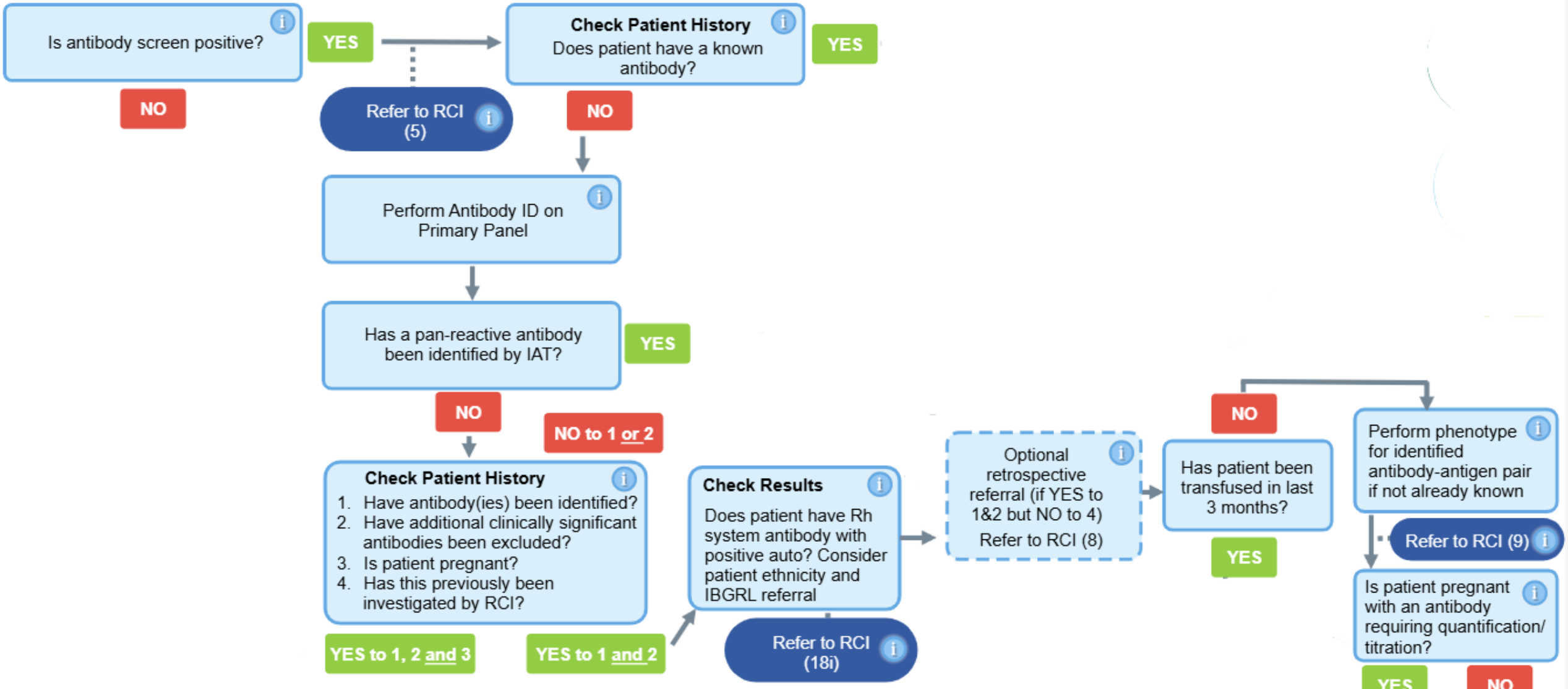
NO

Has patient been transfused in last 3 months?

YES

RCI Assist

Grouping | Antibody ID | Antenatal | Panreactives | Elutions | Transfusion



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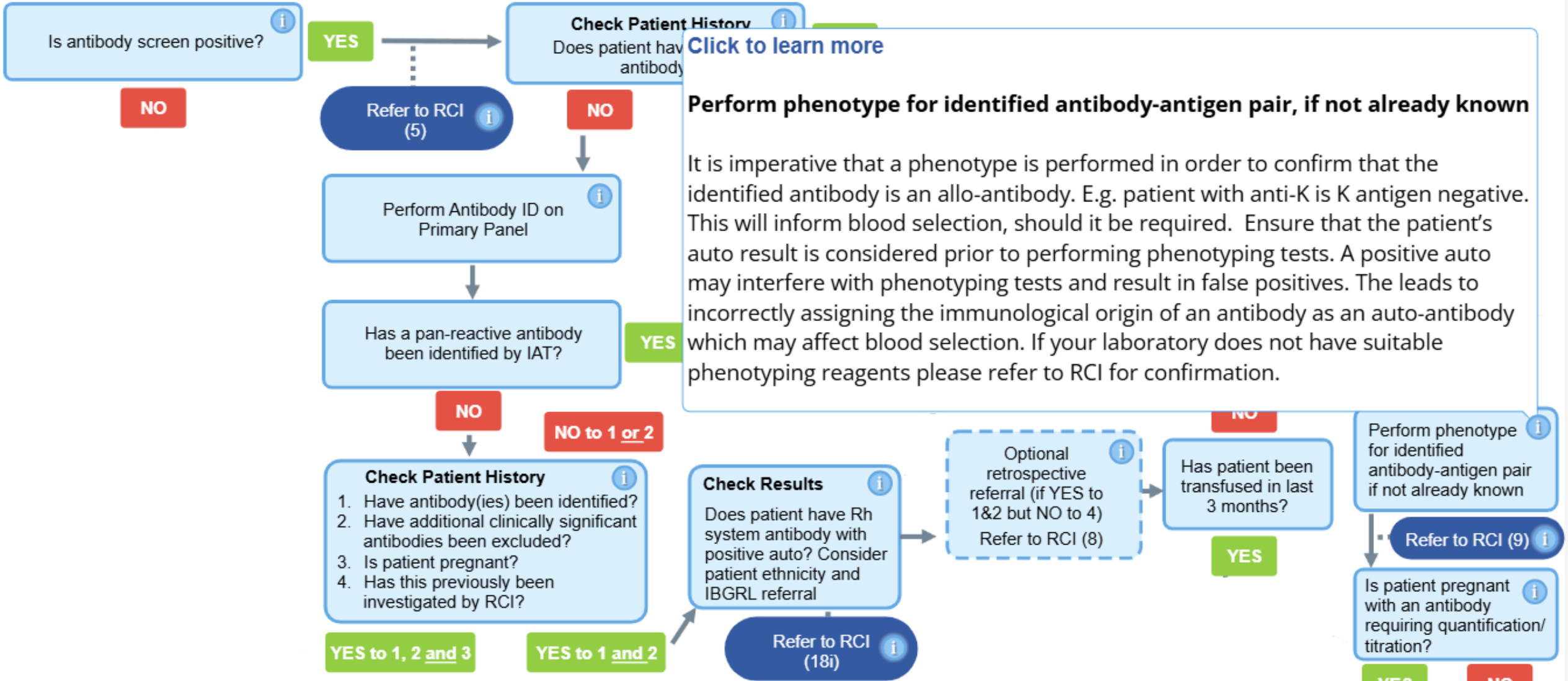


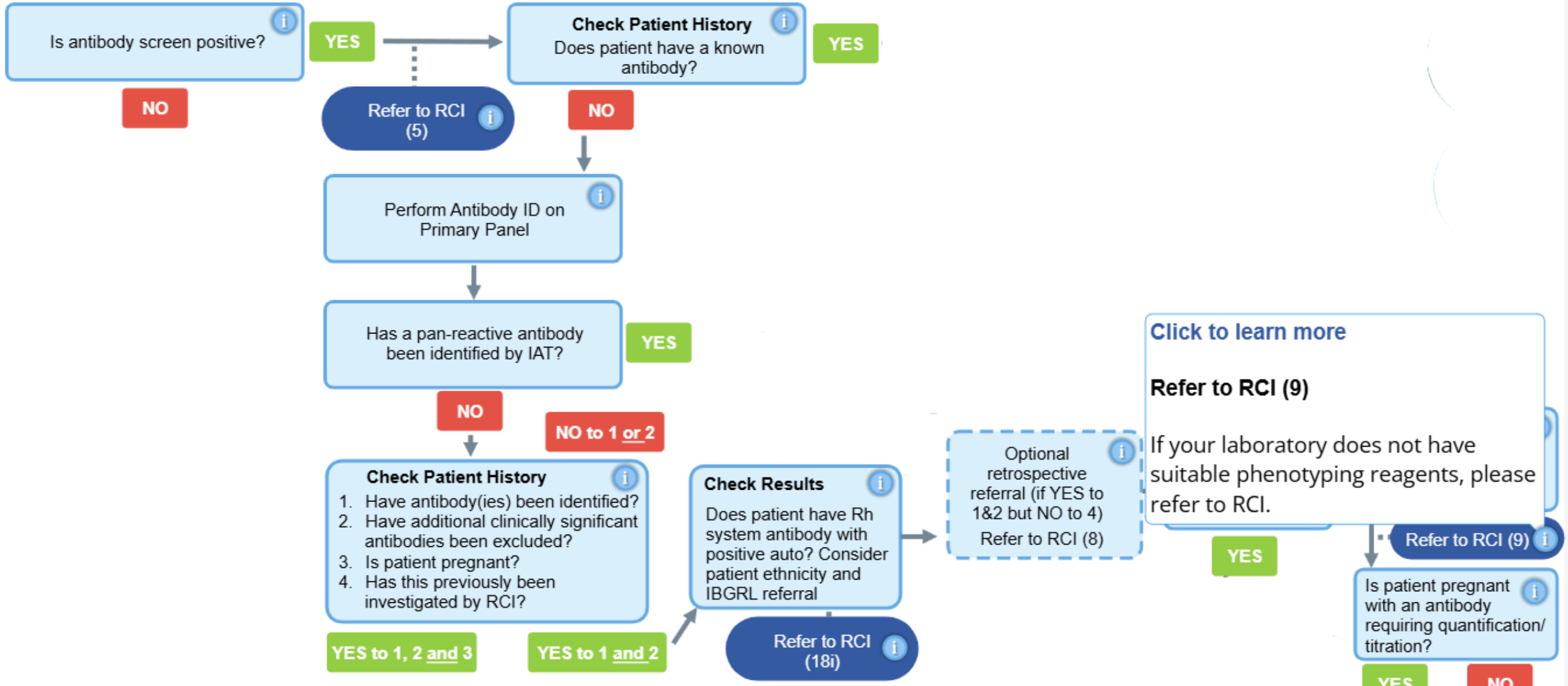
Click to learn more

Perform phenotype for identified antibody-antigen pair, if not already known

It is imperative that a phenotype is performed in order to confirm that the identified antibody is an allo-antibody. E.g. patient with anti-K is K antigen negative. This will inform blood selection, should it be required. Ensure that the patient's auto result is considered prior to performing phenotyping tests. A positive auto may interfere with phenotyping tests and result in false positives. The leads to incorrectly assigning the immunological origin of an antibody as an auto-antibody which may affect blood selection. If your laboratory does not have suitable phenotyping reagents please refer to RCI for confirmation.

RCI Assist

Grouping | Antibody ID | Antenatal | Panreactives | Elutions | Transfusion



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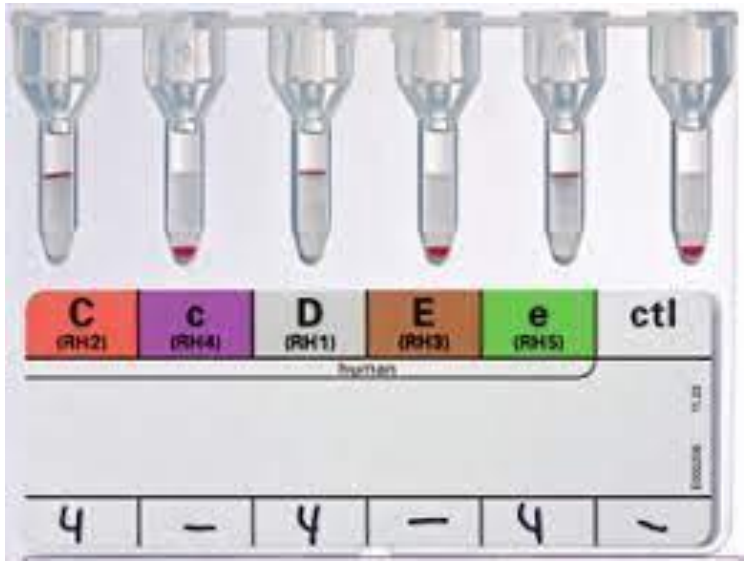
Phenotyping results

- Patient is M negative and K negative
- Group on second sample confirmed the patient is O RhD+
- Your lab also performs extended Rh typing:



Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)

Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

NO

Has patient been transfused in last 3 mon

Y

NO

Perform phenotype for identified antibody-antigen pair if not already known

Refer to RCI (9)

Is patient pregnant with an antibody requiring quantification/ titration?

YES

NO

Is antibody screen positive?

YES

NO

Refer to RCI (5)

Check Patient History
Does patient have a known antibody?

YES

NO

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)

Click to learn more

Antibodies have been identified and all additional antibodies have been excluded

Is patient pregnant with an antibody requiring quantification/titration?

If an investigation has been successfully concluded and the patient is pregnant, consideration must be made for the need for antibody titration or quantification.

If these procedures are not performed in your laboratory, please refer to RCI.

with an antibody requiring quantification/ titration?

YES

NO

RCI Assist

Grouping | Antibody ID | Antenatal | Panreactives | Elutions | Transfusion

Is antibody screen positive?

YES → **Check Patient History**
Does patient have a known antibody?

YES → Refer to RCI (5)

NO

NO → Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History
1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

YES to 1 and 2 → **Check Results**
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)

Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

Has patient been transfused in last 3 months?

NO

YES

Perform phenotype for identified antibody-antigen pair if not already known

Refer to RCI (9)

Is patient pregnant with an antibody requiring quantification/ titration?

YES

NO

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RCI Assist

Grouping | Antibody ID | Antenatal | Panreactives | Elutions | Transfusion

Is antibody screen positive?

YES

NO

Check Patient History
Does patient have a known antibody?

YES

NO

Refer to RCI (5)

Perform Antibody ID on Primary Panel

1.
2.
3.
4.

YES

62-year-old female

Group & Screen

2 units RBC

"Anaemia"

Not previously seen by your lab, but transfused at another hospital 5 years ago

No historical antibodies

Not previously seen by RCI

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and BGRL referral

Refer to RCI (18i)

NO

YES

Transfusion Required?

Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

NO

Has patient been transfused in last 3 months?

YES

Perform phenotype for identified antibody-antigen pair if not already known

Refer to RCI (9)

Is patient pregnant with an antibody requiring quantification/ titration?

YES

NO

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Is antibody screen positive?

YES

NO

Check Patient History
Does patient have a known antibody?

YES

NO

Refer to RCI (5)

Perform Antibody ID on Primary Panel

Has a pan-reactive antibody been identified by IAT?

YES

NO

NO to 1 or 2

Check Patient History

1. Have antibody(ies) been identified?
2. Have additional clinically significant antibodies been excluded?
3. Is patient pregnant?
4. Has this previously been investigated by RCI?

YES to 1, 2 and 3

to 1 and 2

Check Results
Does patient have Rh system antibody with positive auto? Consider patient ethnicity and IBGRL referral

Refer to RCI (18i)

Optional retrospective referral (if YES to 1&2 but NO to 4)
Refer to RCI (8)

NO

Has patient been transfused in last 3 months?

YES

Perform phenotype for identified antibody-antigen pair if not already known

Refer to RCI (9)

Is patient pregnant with an antibody requiring quantification/ titration?

YES

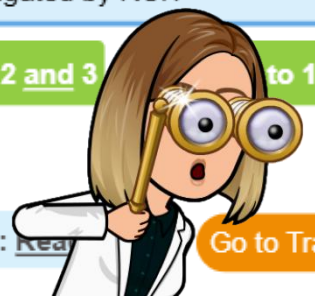
NO

Transfusion Required?

NO

YES

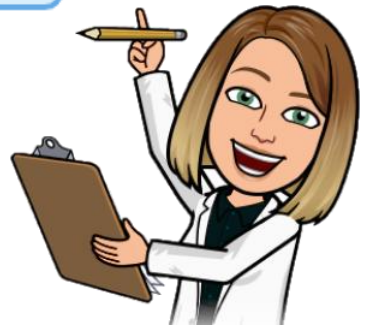
Go to Transfusion section



Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO



62-year-old female

Group & Screen

2 units RBC

“Anaemia”

Not previously seen by your lab, but transfused at another hospital 5 years ago

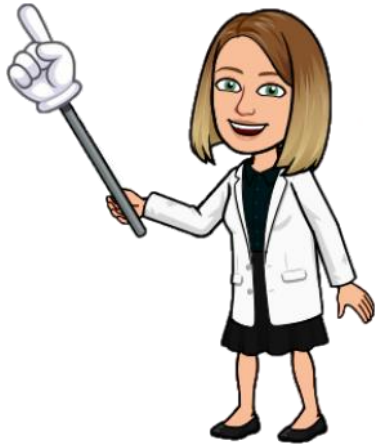
No historical antibodies

Not previously seen by RCI

Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO



Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO

Transfusion Required?

NO

YES

62-year-old female

Group & Screen

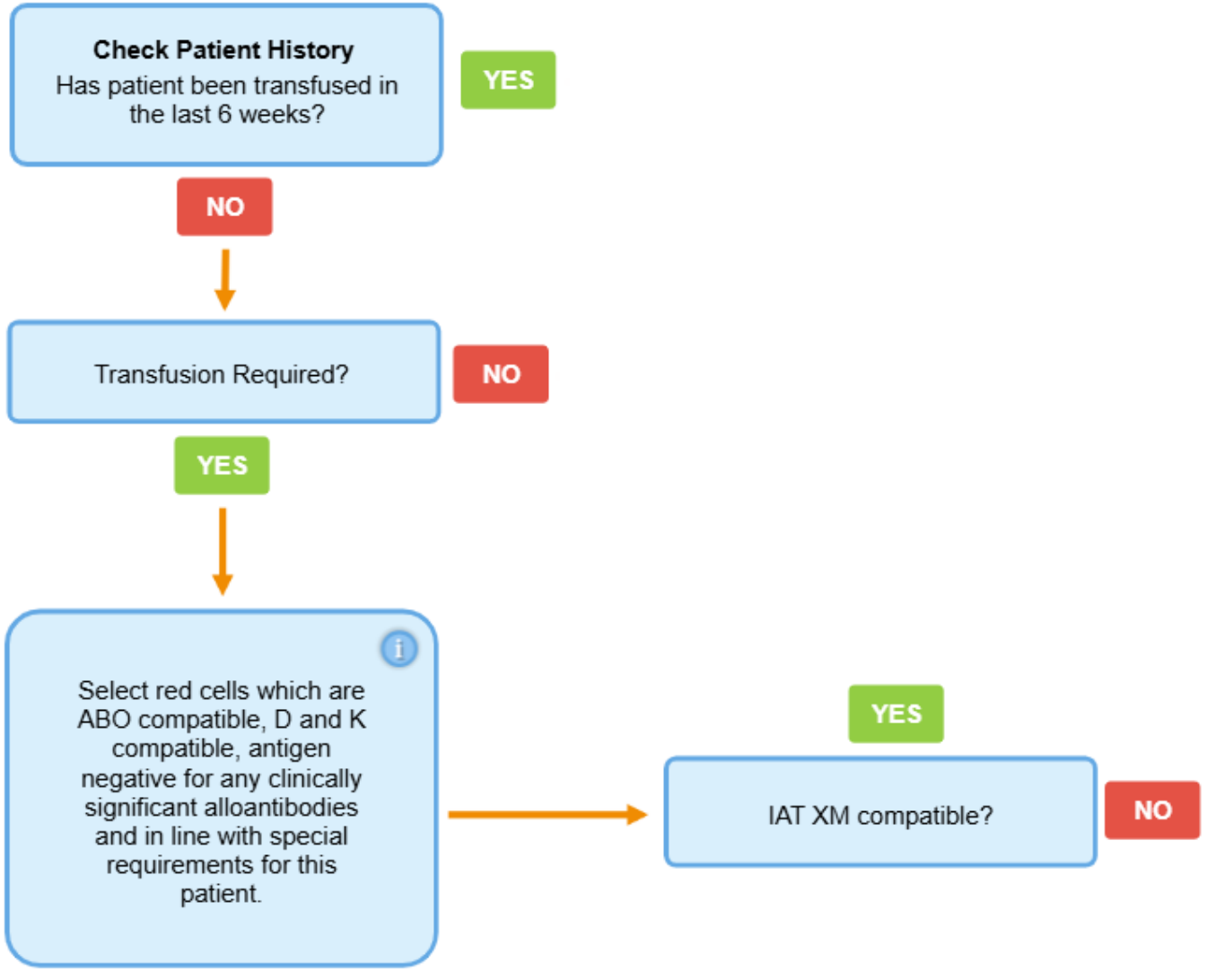
2 units RBC

“Anaemia”

Not previously seen by your lab, but transfused at another hospital 5 years ago

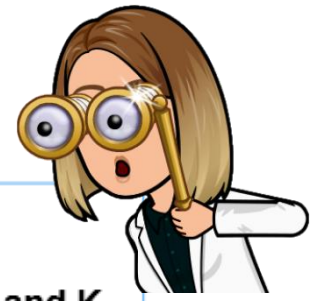
No historical antibodies

Not previously seen by RCI


Check Patient History
Has patient been transfused in the last 6 weeks?
YES
NO
Transfusion Required?
NO
YES
Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.
YES
IAT XM compatible?
NO

Check Patient History
Has patient been transfused in the last 6 weeks?

YES



NO

Transfusion Required?

YES

Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.

Click to learn more

Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies, and in line with special requirements for this patient.

Follow your local procedures in accordance with BSH guidelines. For further information on Pre-Transfusion Compatibility Procedures in Blood Transfusion Laboratories, click here.

YES

IAT XM compatible?

NO

TRANSFUSION MEDICINE
Official Journal of the British Blood Transfusion Society

British Blood Transfusion Society

Transfusion 2024

NHS Blood and Transplant

BSH Guidelines – clinical significance of red cell antibodies

System	Specificity	Likely clinical significance in transfusion	Recommendation for selection of red cells for transfusion
Kell	Anti-K	Yes	Antigen negative
MNS	Anti-M (active at 37°C)	Yes	Antigen negative
Lu	Anti-Lu^a	No	IAT crossmatch compatible at 37 °C

Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO

Transfusion Required?

NO

YES

Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.

YES

IAT XM compatible?

NO

Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO

Transfusion Required?

NO

YES

Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.

YES

IAT XM compatible?

NO

Negative reactions by IAT with patient plasma vs both O R1R1 K- M- crossmatched units

Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO

Transfusion Required?

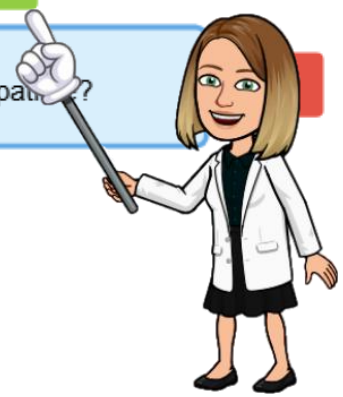
NO

YES

Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.

YES

IAT XM compat[illegible]?



Check Patient History
Has patient been transfused in the last 6 weeks?

YES

NO

Transfusion Required?

NO

YES

Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.

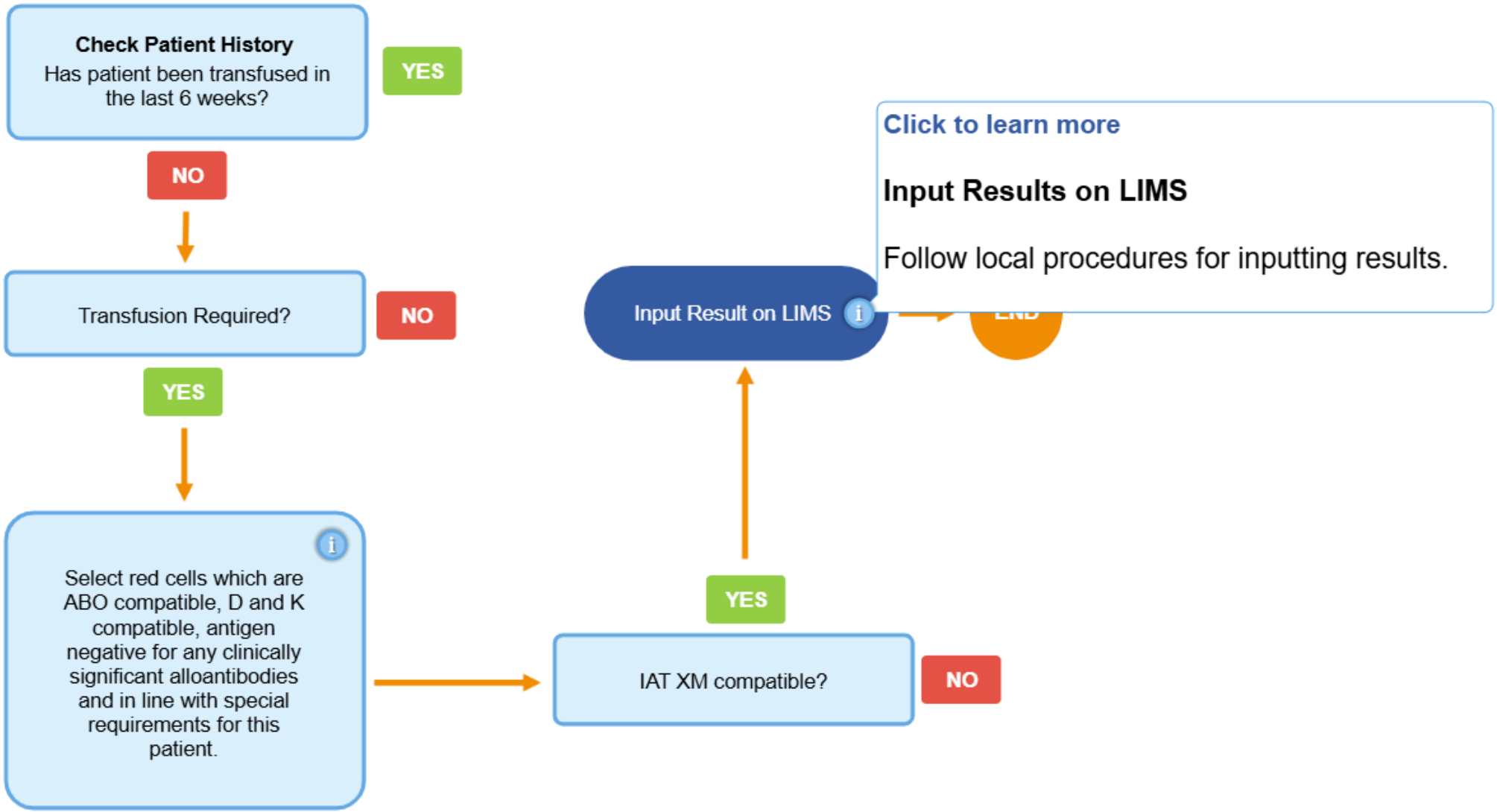
IAT XM compatible?

NO

YES

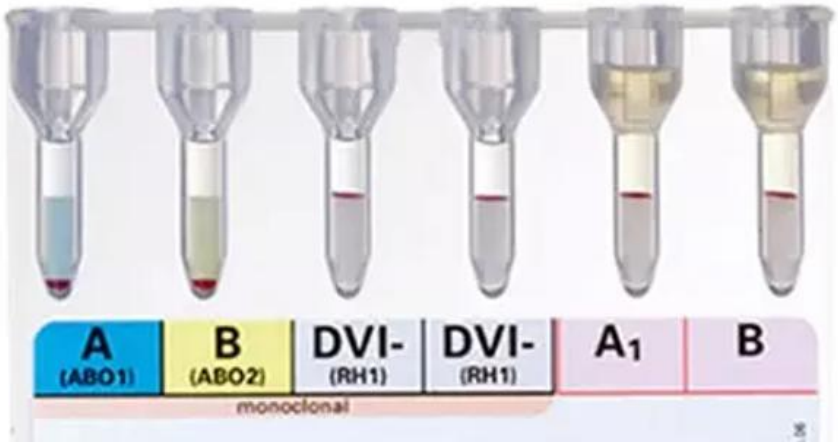
Input Result on LIMS

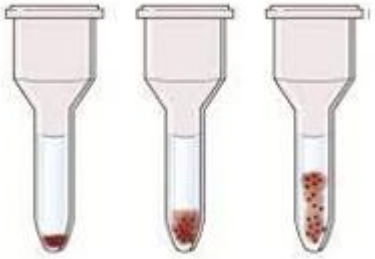
END


Check Patient History
Has patient been transfused in the last 6 weeks?
YES
NO
Transfusion Required?
NO
YES
Select red cells which are ABO compatible, D and K compatible, antigen negative for any clinically significant alloantibodies and in line with special requirements for this patient.
IAT XM compatible?
NO
YES
Input Result on LIMS
Click to learn more
Input Results on LIMS
Follow local procedures for inputting results.

Case 1

- 65-year-old male
- Group & Screen
- No blood requested
- Pre-op assessment
- Historical alloanti-K
- Transfused 10 weeks ago
- LIMS and Sp-ICE results show patient as O+ E- K- with alloanti-K
- Previously seen by RCI





Patient group & screen results

Case 1 – ABID Panel 1

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	0	+	0	+	1	0	0	+	0	+	0	+	0	+	0		+	(+)
2	R_1R_1	+	+	0	0	+	+	0	+	0	1	+	+	+	0	0	+	0	+	0	+		2	2
3	R_2R_2	+	0	+	+	0	0	+	0	+	0	0	0	+	0	0	+	+	W	0	+		0	0
4	r'r	0	+	0	+	+	0	+	+	0	4	0	0	+	0	0	+	0	+	+	+		0	0
5	r''r	0	0	+	+	+	+	0	+	0	3	0	0	+	0	0	+	0	+	+	0		(+)	+
6	rr	0	0	0	+	+	0	+	0	+	0	0	+	+	0	0	+	+	0	+	0	Do(a+b+)	2	2
7	rr	0	0	0	+	+	+	0	0	+	0	0	0	+	0	+	0	0	+	0	+		0	0
8	rr	0	0	0	+	+	0	+	0	+	2	0	0	+	+	+	0	0	+	+	0	HLA+	+	2
9	rr	0	0	0	+	+	0	+	+	0	3	0	0	+	0	+	0	+	0	0	+	Cob+ HLA+	0	0
10	rr	0	0	0	+	+	+	0	0	+	0	+	0	+	0	0	+	+	0	0	+		0	0
																						Auto	2	/
																						K control	2	/

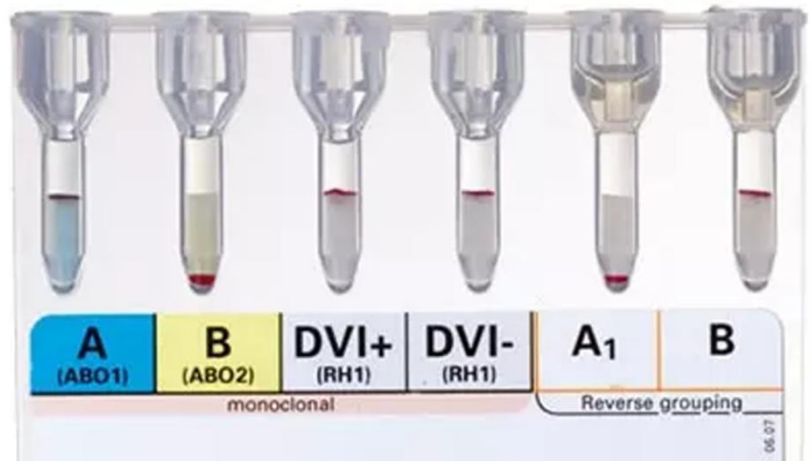
Case 1 – Antibody screen

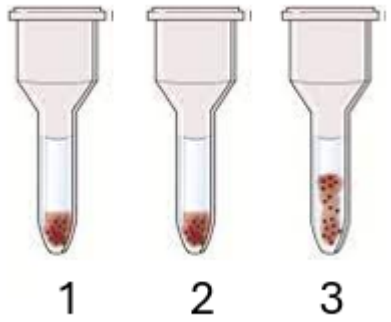
Cell	Rh	D	C	E	c	e	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT
1	$R_1^wR_1$	+	+	0	0	+	0	+	+	0	**0**	**0**	**+**	**0**	**0**	**+**	**+**	**0**	**0**	**+**		0
2	R_2R_2	+	0	+	+	0	+	0	0	+	**0**	**0**	**+**	**0**	**+**	**0**	**0**	**+**	**+**	**0**		1
3	**rr**	0	0	0	+	+	+	0	+	0	**4**	**+**	**0**	**0**	**0**	**+**	**+**	**0**	**+**	**0**		2

DAT profile	Anti-IgG	Anti-IgA	IgM	C3c	C3d	Ctrl
Result	**2**	0	0	0	0	0

Case 2

- 75-year-old male
- Group & Screen
- 2 units RBC
- “Anaemia”
- Not previously seen by your lab
- Transfused at a different HTL 3 weeks ago
- Sp-ICE results show patient as A+ E- K- with no historical antibodies
- Previously seen by RCI





Patient group & screen results

Case 2 – ABID Panel 1

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	0	+	0	+	0	0	0	+	0	+	0	0	+	0	+		0	0
2	R_1R_1	+	+	0	0	+	+	0	+	0	4	0	+	+	0	+	0	+	0	+	0		4	2
3	R_2R_2	+	0	+	+	0	0	+	0	+	3	0	0	+	0	0	+	0	+	+	0	HLA+ Do(a+b+)	2	2
4	r'r	0	+	0	+	+	0	+	0	+	0	0	0	+	0	0	+	+	0	+	+		2	2
5	r''r	0	0	+	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		2	0
6	rr	0	0	0	+	+	+	0	0	+	2	0	+	0	0	0	+	0	+	0	+		0	0
7	rr	0	0	0	+	+	0	+	0	+	1	0	+	+	0	+	0	0	+	+	0		2	2
8	rr	0	0	0	+	+	+	0	0	+	0	0	0	+	+	0	+	+	0	0	+	Cob+	0	0
9	rr	0	0	0	+	+	0	+	+	0	4	0	0	+	0	0	+	0	+	0	+		3	0
10	rr	0	0	0	+	+	+	0	0	+	4	+	0	+	0	0	+	+	0	+	0	Cob+	2	2
																						Auto	3	/
																						K control	2	/

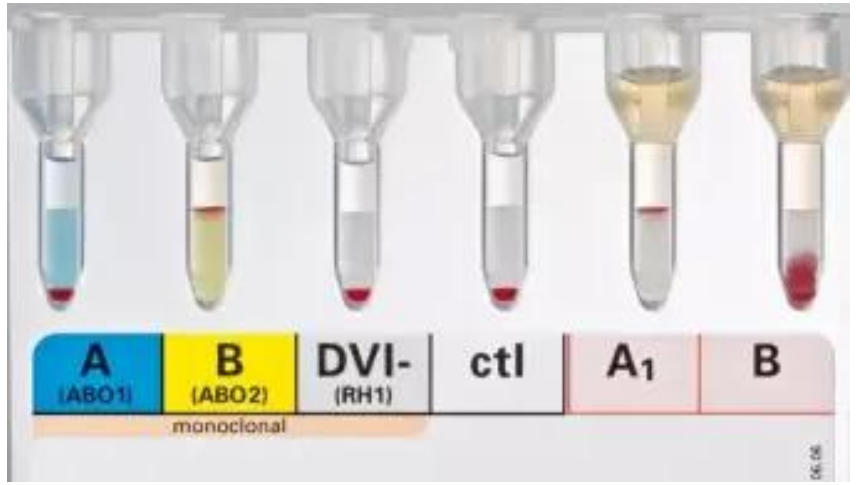
Case 2 – Antibody screen

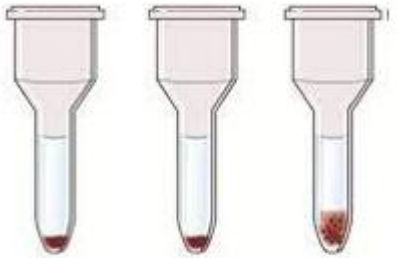
Cell	Rh	D	C	E	c	e	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT
1	$R_1^wR_1$	+	+	0	0	+	+	0	+	0	**0**	**0**	**+**	**0**	**0**	**+**	**+**	**0**	**0**	**+**		1
2	R_2R_2	+	0	+	+	0	0	+	0	+	**0**	**0**	**+**	**0**	**+**	**0**	**0**	**+**	**+**	**0**		1
3	**rr**	0	0	0	+	+	+	0	+	0	**4**	**+**	**0**	**0**	**0**	**+**	**+**	**0**	**+**	**0**		2

DAT profile	Anti-IgG	Anti-IgA	IgM	C3c	C3d	Ctrl
Result	**3**	0	0	0	0	0

Case 3

- 54-year-old male
- Group & Screen
- No blood requested
- RTA
- Not previously seen by your lab
- No record on Sp-ICE
- Not previously seen by RCI
- Never been transfused





Patient group & screen results

Case 3 – ABID Panel 1

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	+	0	+	0	3	0	+	0	0	0	+	0	+	0	+		1	0
2	R_1R_1	+	+	0	0	+	+	+	0	+	1	0	0	+	0	+	0	+	0	+	0	HLA+	0	0
3	R_2R_2	+	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	0	+	+	0		0	0
4	r'r	0	+	0	+	+	0	+	0	+	0	0	0	+	0	+	0	+	0	0	+		0	0
5	r''r	0	0	+	+	+	+	0	+	0	1	0	0	+	0	0	+	+	0	0	+		0	0
6	rr	0	0	0	+	+	0	+	0	+	4	0	+	0	0	0	+	0	+	+	0	HLA+	0	0
7	rr	0	0	0	+	+	0	+	0	+	0	0	+	+	0	0	+	W	0	+	0		0	0
8	rr	0	0	0	+	+	+	0	0	+	0	0	0	+	+	0	+	+	0	0	+		1	0
9	rr	0	0	0	+	+	0	+	+	0	1	0	0	+	0	0	+	+	0	+	0		0	0
10	rr	0	0	0	+	+	+	0	0	+	3	+	0	+	0	0	+	0	+	+	0		0	0
																						Auto	0	/
																						K control	2	/

Case 3 – ABID Panel 1

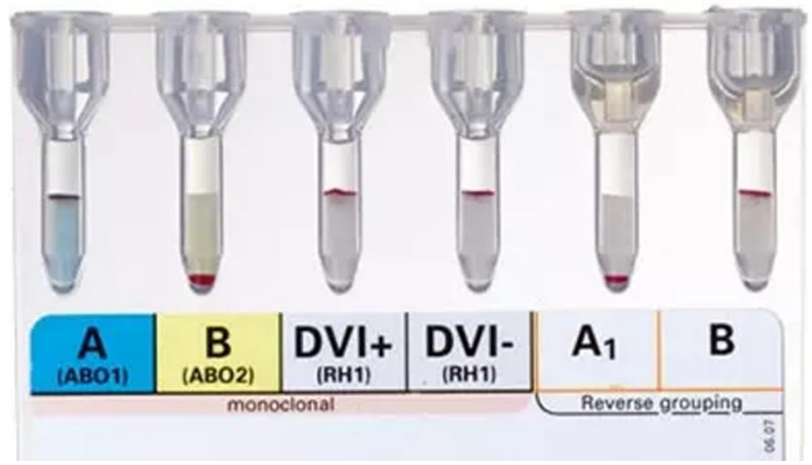
Cell	Rh	D	C	E	c	e	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ	Cold IAT
1	$R_1^wR_1$	+	+	0	0	+	+	0	+	0	3	0	+	0	0	0	+	0	+	0	+		1	0	2
2	R_1R_1	+	+	0	0	+	+	+	0	+	1	0	0	+	0	+	0	+	0	+	0	HLA+	0	0	1
3	R_2R_2	+	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	0	+	+	0		0	0	0
4	r'r	0	+	0	+	+	0	+	0	+	0	0	0	+	0	+	0	+	0	0	+		0	0	0
5	r''r	0	0	+	+	+	+	0	+	0	1	0	0	+	0	0	+	+	0	0	+		0	0	2
6	rr	0	0	0	+	+	0	+	0	+	4	0	+	0	0	0	+	0	+	+	0	HLA+	0	0	0
7	rr	0	0	0	+	+	0	+	0	+	0	0	+	+	0	0	+	W	0	+	0		0	0	0
8	rr	0	0	0	+	+	+	0	0	+	0	0	0	+	+	0	+	+	0	0	+		1	0	2
9	rr	0	0	0	+	+	0	+	+	0	1	0	0	+	0	0	+	+	0	+	0		0	0	0
10	rr	0	0	0	+	+	+	0	0	+	3	+	0	+	0	0	+	0	+	+	0		0	0	2
																						Auto	0	/	/
																						K control	2	/	/

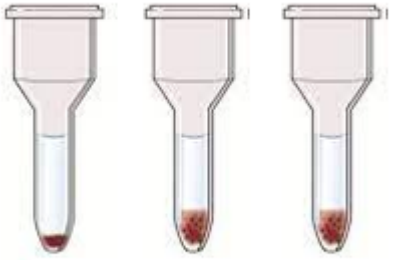
Case 3 – Antibody screen

Cell	Rh	D	C	E	c	e	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT
1	$R_1^wR_1$	+	+	0	0	+	0	+	+	0	**0**	**0**	**+**	**0**	**0**	**+**	**+**	**0**	**0**	**+**		0
2	R_2R_2	+	0	+	+	0	+	0	+	0	**0**	**0**	**+**	**0**	**+**	**0**	**0**	**+**	**+**	**0**		0
3	**rr**	0	0	0	+	+	+	0	+	0	**4**	**+**	**0**	**0**	**0**	**+**	**+**	**0**	**+**	**0**		+/-

Case 4

- 54-year-old female
- Group & Screen
- 2 units RBC
- PV bleed
- Not previously seen by your lab
- No record on Sp-ICE
- No historical antibodies
- Not previously seen by RCI





1 2 3

Patient group & screen results

Case 4 – ABID Panel 1

Cell	Rh	D	C	E	c	e	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	ENZ
1	$R_1^wR_1$	+	+	0	0	+	0	+	0	+	5	0	0	+	0	0	+	+	0	0	+		(+)	0
2	R_1R_1	+	+	0	0	+	+	0	+	0	4	0	+	+	0	0	+	0	+	+	0	HLA+	0	0
3	R_2R_2	+	0	+	+	0	0	+	0	+	1	0	0	+	0	+	0	+	0	0	+	HLA+	(+)	2
4	r'r	0	+	0	+	+	0	+	0	+	0	0	0	+	0	+	0	+	0	0	+		(+)	0
5	r''r	0	0	+	+	+	+	0	+	0	2	0	0	+	0	0	+	0	+	+	0		0	2
6	rr	0	0	0	+	+	+	+	0	+	3	0	+	0	0	0	0	+	0	0	+		(+)	2
7	rr	0	0	0	+	+	0	+	0	+	0	0	+	+	0	0	+	+	0	+	0	Do(a+b+)	(+)	2
8	rr	0	0	0	+	+	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		0	2
9	rr	0	0	0	+	+	0	+	+	0	2	0	0	+	+	+	0	0	+	+	0	Cob+	0	2
10	rr	0	0	0	+	+	+	0	+	0	4	+	0	+	0	0	+	+	0	0	+	Kna-	(+)	2
																						Auto	0	/
																						K control	2	/

Case 4 – Antibody screen

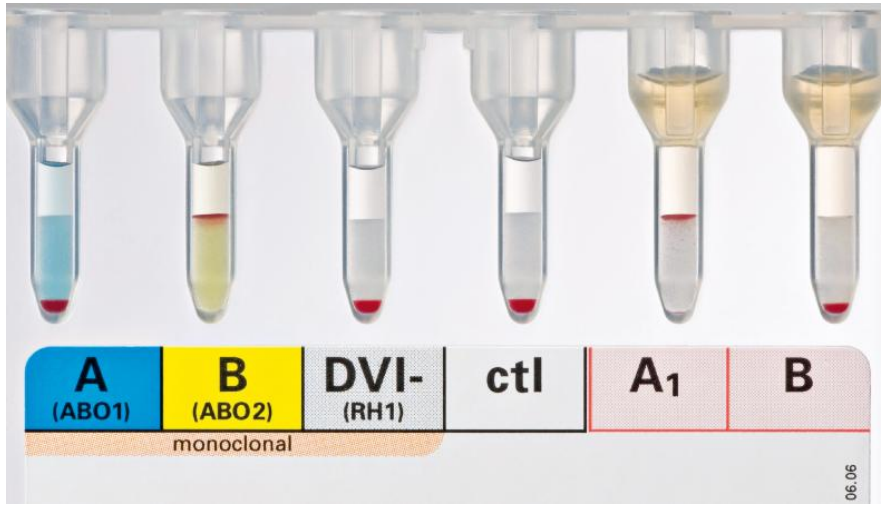
Cell	Rh	D	C	E	c	e	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT
1	$R_1^wR_1$	+	+	0	0	+	0	+	+	0	**0**	**0**	**+**	**0**	**0**	**+**	**0**	**+**	**0**	**+**		0
2	R_2R_2	+	0	+	+	0	+	0	0	+	**0**	**0**	**+**	**0**	**+**	**0**	**+**	**0**	**+**	**0**		(+)
3	**rr**	0	0	0	+	+	+	0	+	0	**4**	**+**	**0**	**0**	**0**	**+**	**+**	**0**	**0**	**+**		+

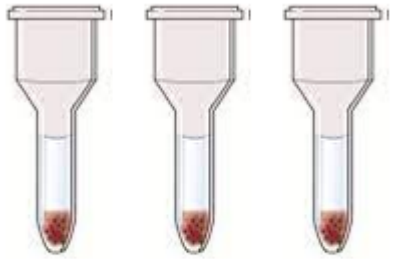
Case 4 – secondary panel

Cell	Rh	D	C	E	c	e	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	EIAT
1	$R_1^wR_1$	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+	+	0		0	0
2	R_1R_1	+	+	0	0	+	+	0	+	0	1	0	+	+	0	0	+	+	0	0	+		(+)	0
3	R_2R_2	+	0	+	+	0	0	+	0	+	0	0	0	+	0	0	0	+	0	0	+		(+)	2
4	r'r	0	+	0	+	+	+	0	0	+	2	0	0	+	0	+	0	+	0	0	+		(+)	0
5	r''r	0	0	+	+	+	+	0	+	0	0	0	0	+	0	0	+	0	+	+	0		0	2
6	rr	0	0	0	+	+	+	+	0	+	4	0	+	0	0	0	+	+	0	+	0		(+)	2
7	rr	0	0	0	+	+	0	+	0	+	1	0	+	+	0	+	0	0	+	+	0		0	2
8	rr	0	0	0	+	+	+	0	+	0	0	0	0	+	+	0	0	0	+	0	+		0	2
9	rr	0	0	0	+	+	0	+	0	+	0	+	0	+	0	+	0	0	+	+	0		0	2
10	rr	0	0	0	+	+	0	+	+	0	3	0	0	+	0	0	0	+	0	0	+		(+)	2
																						Auto	/	/
																						K control	2	/

Case 5

- 90-year-old female
- Group & Screen
- No blood requested
- “On Dara”
- Extended phenotype results available on LIMS and Sp-ICE
- Known pan-reactive antibody due to monoclonal antibody therapy
- No alloantibodies
- DTT panel performed by RCI 2 weeks ago
- Never been transfused





Patient group & screen results

Case 5 – Antibody screen

Cell	Rh	D	C	E	c	e	M	N	S	s	P1	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT
1	**$R_1^wR_1$**	+	+	0	0	+	0	+	+	0	**0**	**0**	**+**	**0**	**0**	**+**	**0**	**+**	**0**	**+**		1
2	**R_2R_2**	+	0	+	+	0	+	0	0	+	**0**	**0**	**+**	**0**	**+**	**0**	**+**	**0**	**+**	0		1
3	**rr**	0	0	0	+	+	+	0	+	0	**4**	**+**	**0**	**0**	**0**	**+**	**+**	**0**	**+**	**0**		1

Extended phenotype

D	C	E	c	e	M	N	S	s	K	k	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b
+	+	-	+	+	-	+	+	+	-	+	+	+	+	+	+	-