



NHS

Blood and Transplant

RCI Assist

A Referral Support Tool

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RCI Development Lead – Transfusion 2024



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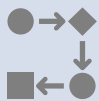
Aims of the awareness session



Why RCI Assist was developed



Brief history – how RCI Assist evolved



Overview of RCI Assist and working example



Next steps

RCI Assist pre-roll out survey





Introduction



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The Transfusion 2024 strategic plan outlined the urgent need to strengthen support for Hospital Transfusion Laboratories (HTL) to ensure safe provision of care for patients in need of transfusion



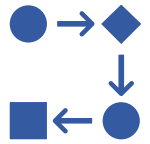
There was an action to undertake pilots of integrated transfusion services between NHSBT Red Cell Immunohaematology (RCI) and HTLs - B3 Integrated services: RCI remote interpretation pilot – initially trialled between RCI Newcastle and Newcastle Upon Tyne NHS Foundation Trust in 2020



Further pilot commenced in 2023/24 across Path Links Pathology Network, supported by RCI Barnsley, and East and South East London Pathology Partnership, supported by RCI Tooting



The pilot was underpinned by the referral support tool, RCI Assist. This acts as a guide for HTL staff and aims to improve confidence by providing reassurance about investigations and blood provision



Referral support tool



RCI Assist contains nineteen decision points and alongside supporting information, assists the user to resolve samples in-house or know when to refer to RCI



Can act as a guide for less experienced staff, be used for training, provides reassurance to all staff



Ensure appropriate cases are referred to RCI – improved patient care



The pilot included four points at which a 'dry' referral could be made to RCI, where analyser results were emailed for remote interpretation without the need to send the traditional 'wet' sample



Methods for pilot

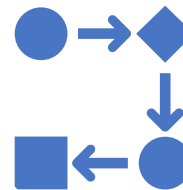


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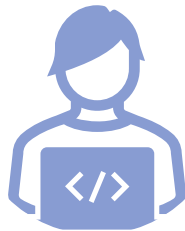
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HTL investigate sample



Identify next steps guided by RCI Assist



HTL resolve in-house and enters results in LIMS



HTL send analyser result and electronic request form to RCI – ‘dry’ referral



HTL send ‘wet’ sample to RCI

How it started

Use the RCI Assist referral support tool to navigate your way through serological investigations:

Start

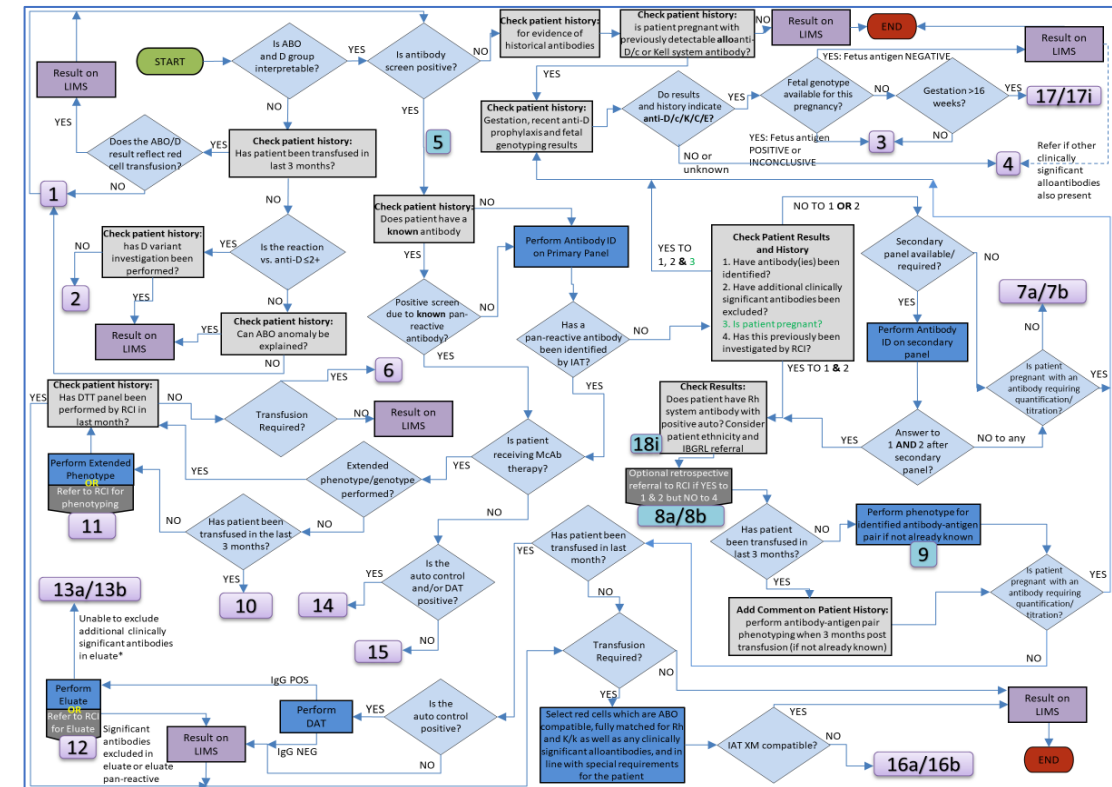
To move through the pathways, go to the start box, then answer the questions

YES NO

Answer yes or no, then move along the pathway

7a/7b

When you reach a decision point, check the supporting information table and either refer to RCI or result in-house



Point	Supporting Information
7a/7b	<ul style="list-style-type: none"> POTENTIAL 'DRY' REFERRAL POINT: If primary panel (and secondary if available/required) panel have been performed and all clinically significant alloantibodies cannot be confirmed and/or excluded referral should be made to NHSBT. NHSBT may be able to successfully conclude these investigations as a 'dry' referral (7a) but in other instances a 'wet' referral may be required to enable further testing to conclude the investigation (7b). Note: for patients with known multiple antibodies which are unlikely to be resolved by a secondary panel it is not expected that a second panel will be performed prior to RCI referral with an antibody requiring quantification in order to save time and plasma.



Pilot Results



Data analysis predicted 14% of referrals would come via the dry referral pathway in the pilot sites
This was done using a years' worth of referral data prior to pilot go live



However, during the pilot, only 5% 'dry' referrals were received from the pilot sites



The same data was reviewed for some non-pilot sites – our control group
This showed no reduction in the number of referrals where the tool was not being used – it actually increased



Qualitative data showed staff felt more confident when using RCI Assist



The aim of the pilot was to improve HTL staff confidence by providing reassurance about investigations and blood provision. This is reflected in the quantitative and qualitative data



The benefits found from using the RCI Assist tool negated the need for the remote interpretation service



Feedback from pilot



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“RCI Assist provides a comfort blanket for those multi-disciplinary staff working in Blood Transfusion and gives them confidence when processing samples”

*Kimberley Garnett, Blood Transfusion Manager,
Path Links Pathology*



“RCI assist is a potential game changer for the way in which valuable resources and expertise is shared, particularly relating to improving and supporting training and confidence levels”

*Patricia Richards, Blood Transfusion Scientific Lead,
East and South East London Pathology Partnership*

How it's going

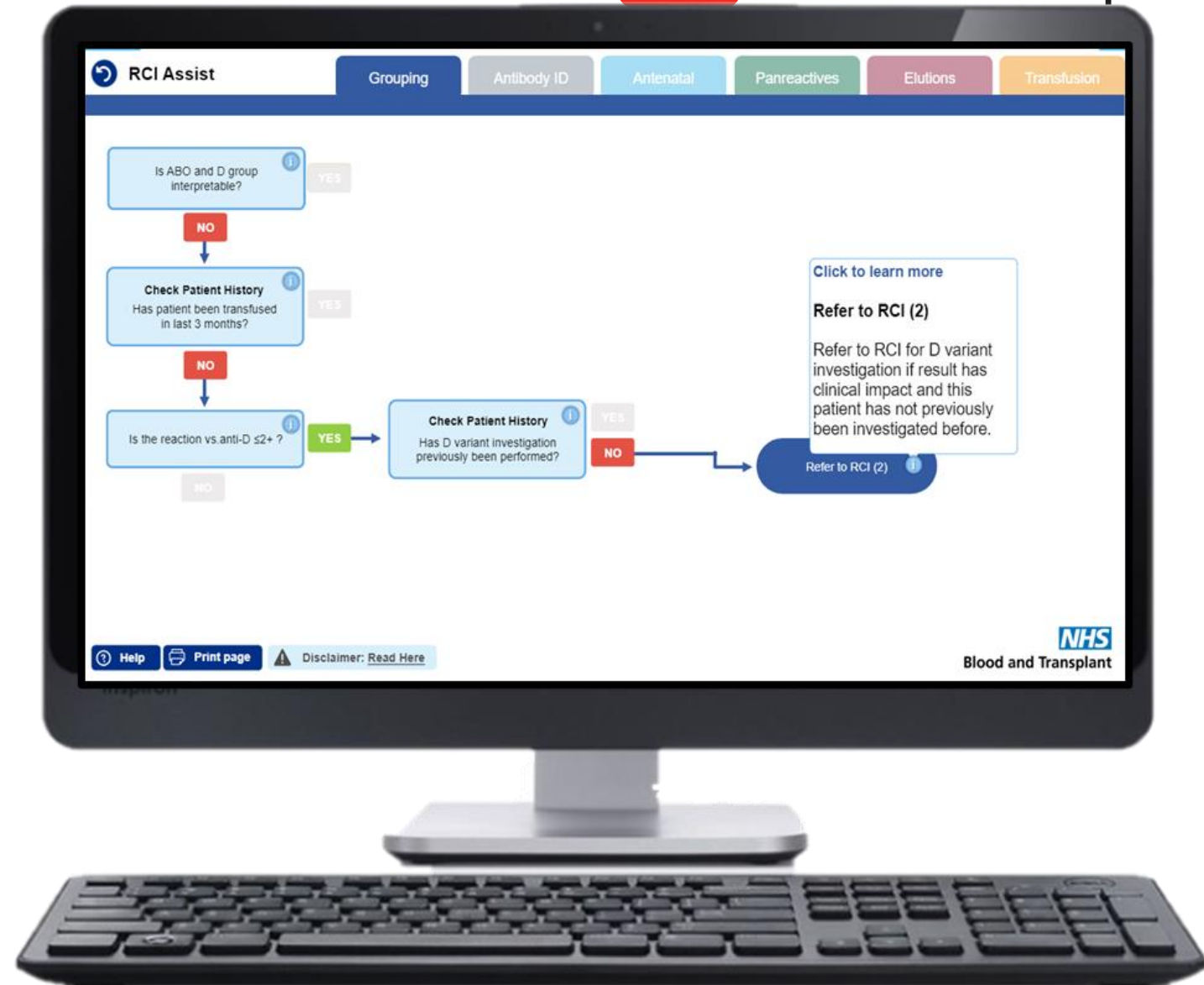
Use the RCI Assist referral support tool to navigate your way through serological investigations:

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

i 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

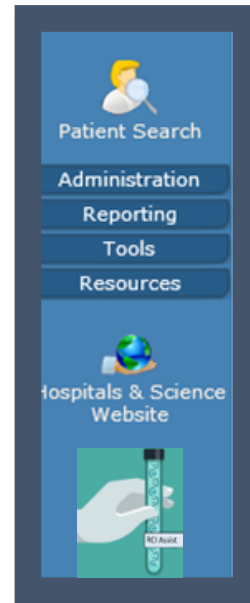
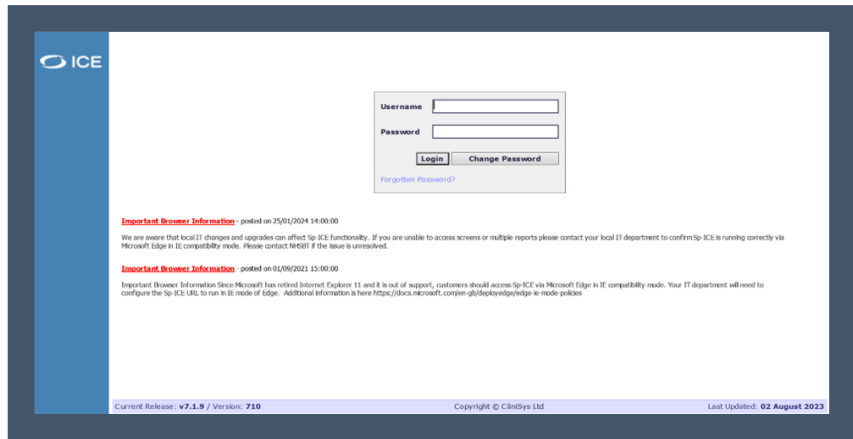


Locating the RCI Assist Link

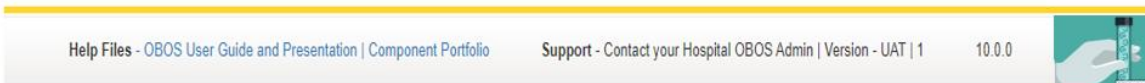
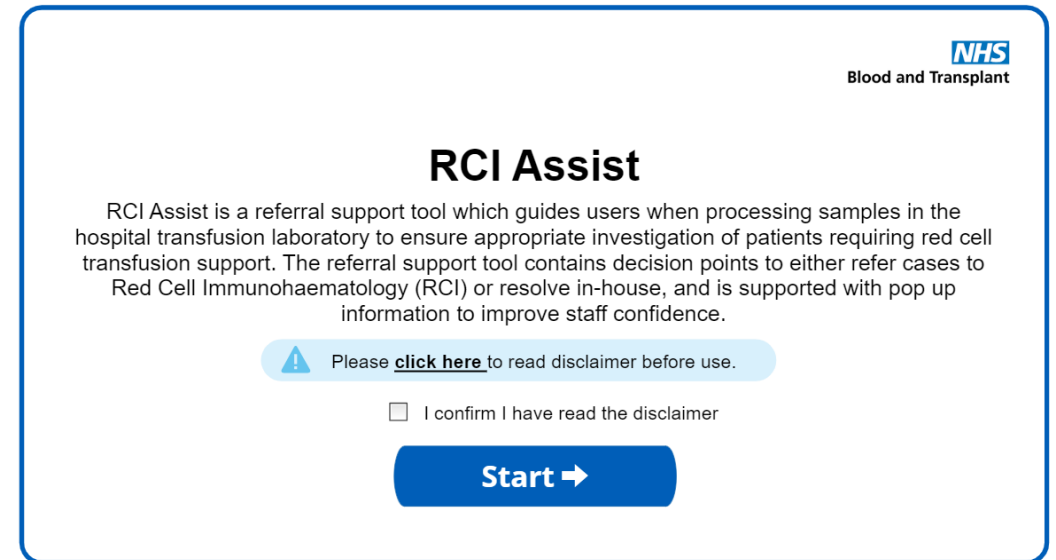
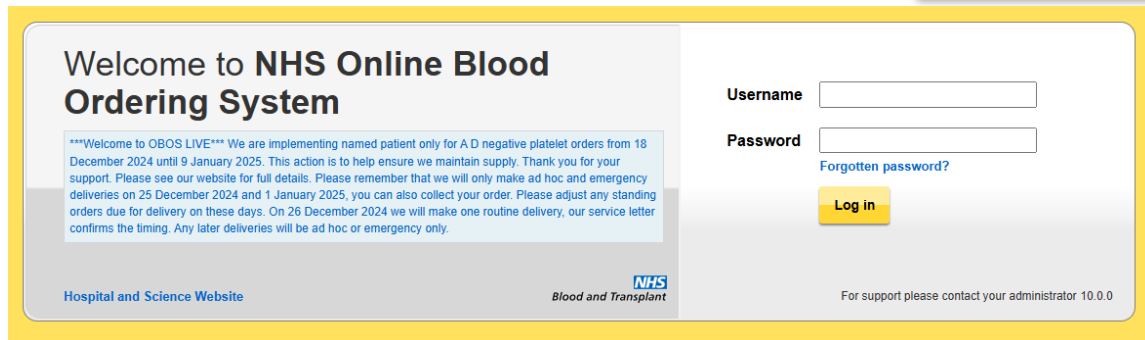


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- Select the RCI Assist link
- You will be taken to the RCI Assist homepage



Your last login was on: 19/06/2024 17:00:57.




Disclaimer



RCI Assist

RCI Assist is a referral support tool which guides users when processing samples in the hospital transfusion laboratory to ensure appropriate investigation of patients requiring red cell transfusion support. The referral support tool 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 staff confidence.

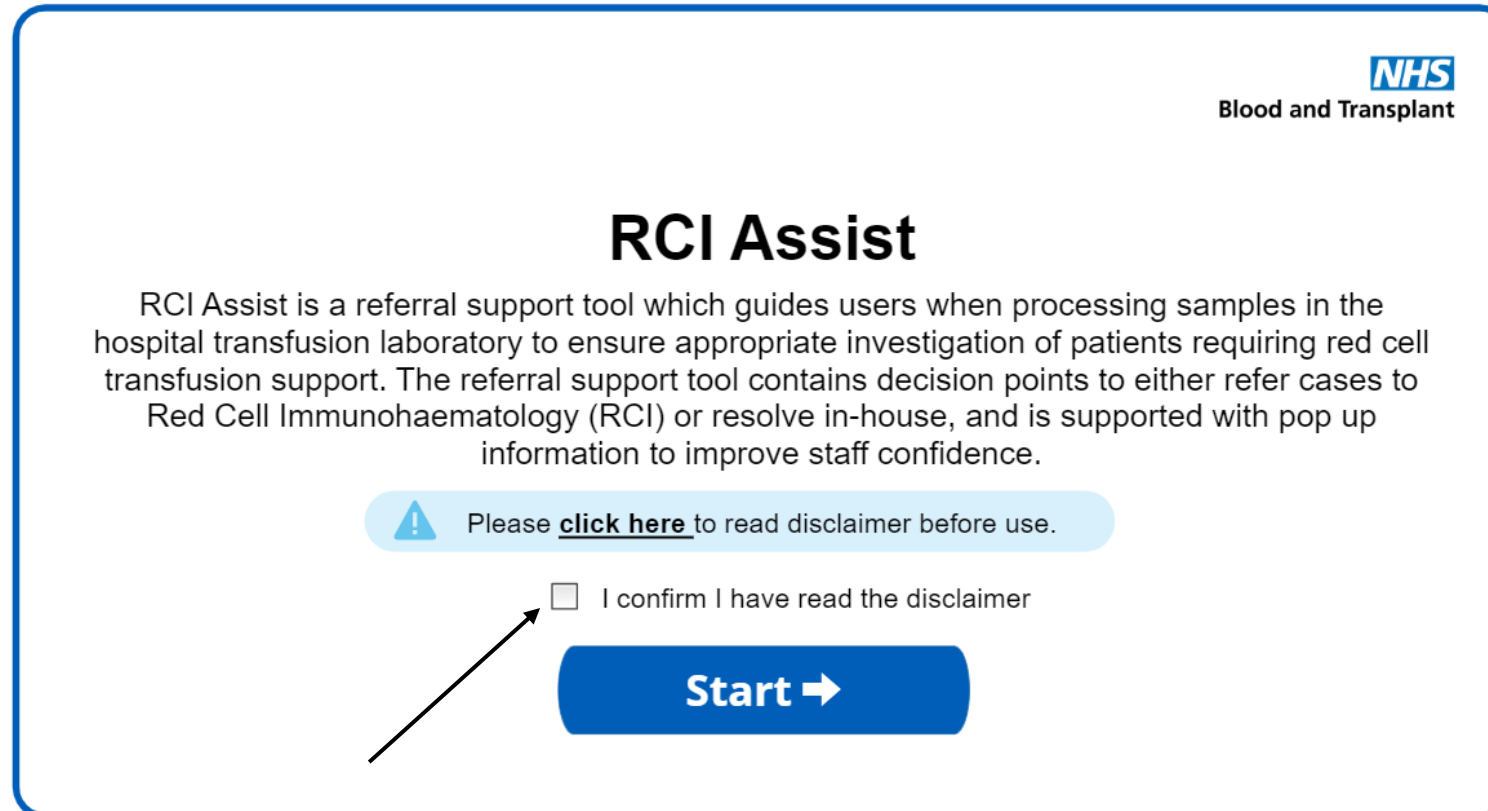
 Please [click here](#) to read disclaimer before use.

I confirm I have read the disclaimer

Start →

Select **click here to read** disclaimer

Disclaimer



The screenshot shows the RCI Assist interface. At the top right is the NHS Blood and Transplant logo. The main heading is 'RCI Assist'. Below it is a paragraph of text explaining the tool's purpose. A light blue warning box contains a triangle icon and the text 'Please [click here](#) to read disclaimer before use.' Below this is a checkbox with the text 'I confirm I have read the disclaimer'. An arrow points from the bottom left towards the checkbox. At the bottom center is a blue 'Start' button with a right-pointing arrow.

Once you have read the disclaimer, select the **tick box** to confirm you have read it the disclaimer

Navigating RCI Assist



The screenshot shows the RCI Assist web application interface. At the top, there is a navigation bar with a "RCI Assist" logo and several tabs: "Grouping" (selected), "Antibody ID", "Antenatal", "Panreactives", "Elutions", and "Transfusion". Below the navigation bar, there is a question box: "Is ABO and D group interpretable?". To the right of the question box are two buttons: a green "YES" button and a red "NO" button. In the bottom left corner, there is a "Help" button with a question mark icon. An arrow points from the text "To watch a video tutorial, click **Help**" to the "Help" button. Other buttons in the bottom left include "Print page" and "Disclaimer: Read Here". In the bottom right corner, there is the NHS Blood and Transplant logo.

To watch a video tutorial,
click **Help**

Navigating RCI Assist



The screenshot shows the RCI Assist web application interface. At the top, there is a navigation bar with a "RCI Assist" logo and several tabs: "Grouping" (selected), "Antibody ID", "Antenatal", "Panreactives", "Elutions", and "Transfusion". Below the navigation bar, there is a question box: "Is ABO and D group interpretable?". To the right of the question box are two buttons: a green "YES" button and a red "NO" button. At the bottom of the interface, there is a footer with three buttons: "Help", "Print page", and "Disclaimer: Read Here". An arrow points from the text below to the "Print page" button.

RCI Assist

Grouping Antibody ID Antenatal Panreactives Elutions Transfusion

Is ABO and D group interpretable? YES NO

To print a page, select the **print page** option. Please note this will only print the current page

Help Print page Disclaimer: [Read Here](#)

Navigating RCI Assist



RCI Assist

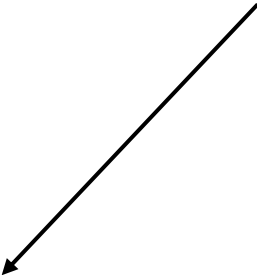

Grouping Antibody ID Antenatal Panreactives Elutions Transfusion

Is ABO and D group interpretable? **YES**

NO

To view the disclaimer again, select **read here**

Help Print page Disclaimer: [Read Here](#)



Navigating RCI Assist

The screenshot shows the RCI Assist web application interface. At the top, there is a navigation bar with a home icon and the text "RCI Assist". Below this are several tabs: "Grouping" (selected), "Antibody ID", "Antenatal", "Panreactives", "Elutions", and "Transfusion". The main content area displays a question box: "Is ABO and D group interpretable?". To the right of the question box are two buttons: a green "YES" button and a red "NO" button. Two black arrows point from the explanatory text to these buttons. At the bottom of the interface, there are three buttons: "Help", "Print page", and "Disclaimer: Read Here". The NHS Blood and Transplant logo is visible in the bottom right corner of the interface.

RCI Assist

Grouping Antibody ID Antenatal Panreactives Elutions Transfusion

Is ABO and D group interpretable? **YES** **NO**

To move through the pathways, select **YES** or **NO** options next to the question boxes. The answer will depend on the patient results and/or history

Help Print page Disclaimer: [Read Here](#)

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Navigating RCI Assist



The screenshot shows the RCI Assist web application interface. At the top, there is a navigation bar with the "RCI Assist" logo and several tabs: "Grouping" (selected), "Antibody ID", "Antenatal", "Panreactives", "Elutions", and "Transfusion". Below the navigation bar, there is a question box: "Is ABO and D group interpretable?". To the right of the question box are two buttons: a green "YES" button and a red "NO" button. An information icon (a lowercase 'i' in a circle) is located in the top right corner of the question box, with a black arrow pointing to it from the text "To learn more about a box, click on the information button". At the bottom of the interface, there is a footer with three buttons: "Help", "Print page", and "Disclaimer: Read Here". The NHS Blood and Transplant logo is also present in the bottom right corner of the interface.

To learn more about a box, click on the **information button**

Navigating RCI Assist



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RCI Assist

Grouping

Antibody ID

Antenatal

Panreactives

Elutions

Transfusion

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.

To close the pop-up box, click on the **information button**

Help Print page Disclaimer: [Read Here](#)

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Navigating RCI Assist



The screenshot shows the RCI Assist web application interface. At the top left, there is a navigation icon and the text "RCI Assist". To the right of this is a horizontal menu with six tabs: "Grouping" (dark blue), "Antibody ID" (grey), "Antenatal" (light blue), "Panreactives" (green), "Elutions" (purple), and "Transfusion" (orange). The "Grouping" tab is currently selected. Below the menu, there is a question box: "Is ABO and D group interpretable?". To the right of the question is a green "YES" button, and below the question is a red "NO" button. An information icon (i) is in the top right corner of the question box. At the bottom left, there are three buttons: "Help" (with a question mark icon), "Print page" (with a printer icon), and "Disclaimer: Read Here" (with a warning triangle icon). At the bottom right, there is the NHS Blood and Transplant logo.

If you want to jump to another section, select the required tab. This option is available for when you don't need to follow a particular pathway

Navigating RCI Assist



The current page is highlighted in the corresponding colour:

A vertical stack of six navigation menus for the RCI Assist system. Each menu has a circular icon with a right-pointing arrow and the text "RCI Assist" on the left. To the right are seven buttons: "Grouping" (blue), "Antibody ID" (grey), "Antenatal" (light blue), "Panreactives" (green), "Elutions" (purple), and "Transfusion" (orange). The first menu has a dark blue bar at the bottom, and the "Grouping" button is highlighted in a darker blue. The second menu has a grey bar at the bottom, and the "Antibody ID" button is highlighted in a darker grey. The third menu has a light blue bar at the bottom, and the "Antenatal" button is highlighted in a darker light blue. The fourth menu has a dark green bar at the bottom, and the "Panreactives" button is highlighted in a darker green. The fifth menu has a dark red bar at the bottom, and the "Elutions" button is highlighted in a darker red. The sixth menu has an orange bar at the bottom, and the "Transfusion" button is highlighted in a darker orange. An arrow from the text above points to the first menu.



Moving between pages

- As you move between pages, previously selected pathways will still be available if you return to any previous pages using the navigation tabs
- **Please note, using the back arrows will cause you to exit RCI Assist**
- You must ensure that you only reset the package when your investigation is complete
- You must reset the package when processing a new sample
- Each time you log in from Sp-ICE or OBOS, you will reach the RCI Assist homepage and have to accept the disclaimer

Resetting the package

- To reset the package, select the reset button in the top left
- You will be asked if you are sure you want to reset
- If you select no, you will return to the current page and all previous selections will be available
- If you select yes, you will return to the RCI Assist homepage



The screenshot shows the RCI Assist interface with a navigation bar containing 'RCI Assist', 'Grouping', 'Antibody ID', 'Antenatal', 'Panreactives', 'Elutions', and 'Transfusion'. A question box asks 'Is ABO and D group interpretable?' with 'YES' and 'NO' buttons. A larger confirmation dialog is open, titled 'Would you like to reset?', with a blue circular reset icon. The dialog text reads: 'Please note: This will remove all progress made in all sections (Grouping, Antibody ID, Antenatal, Panreactives, Elutions and Transfusion).' Below the text are 'Yes' and 'No' buttons. At the bottom of the page, there are links for 'Help', 'Print page', and 'Disclaimer: Read Here'. The NHS Blood and Transplant logo is in the bottom right corner.



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Urgent Referrals to RCI

- Please notify the RCI laboratory by telephone of any urgent requests
- All crossmatch requests required during routine hours must be telephoned to the local RCI laboratory
- Out of hours, only crossmatch requests that are required to be tested within the out of hours service must be telephoned
- For further information, please refer to the [RCI User Guide](#)



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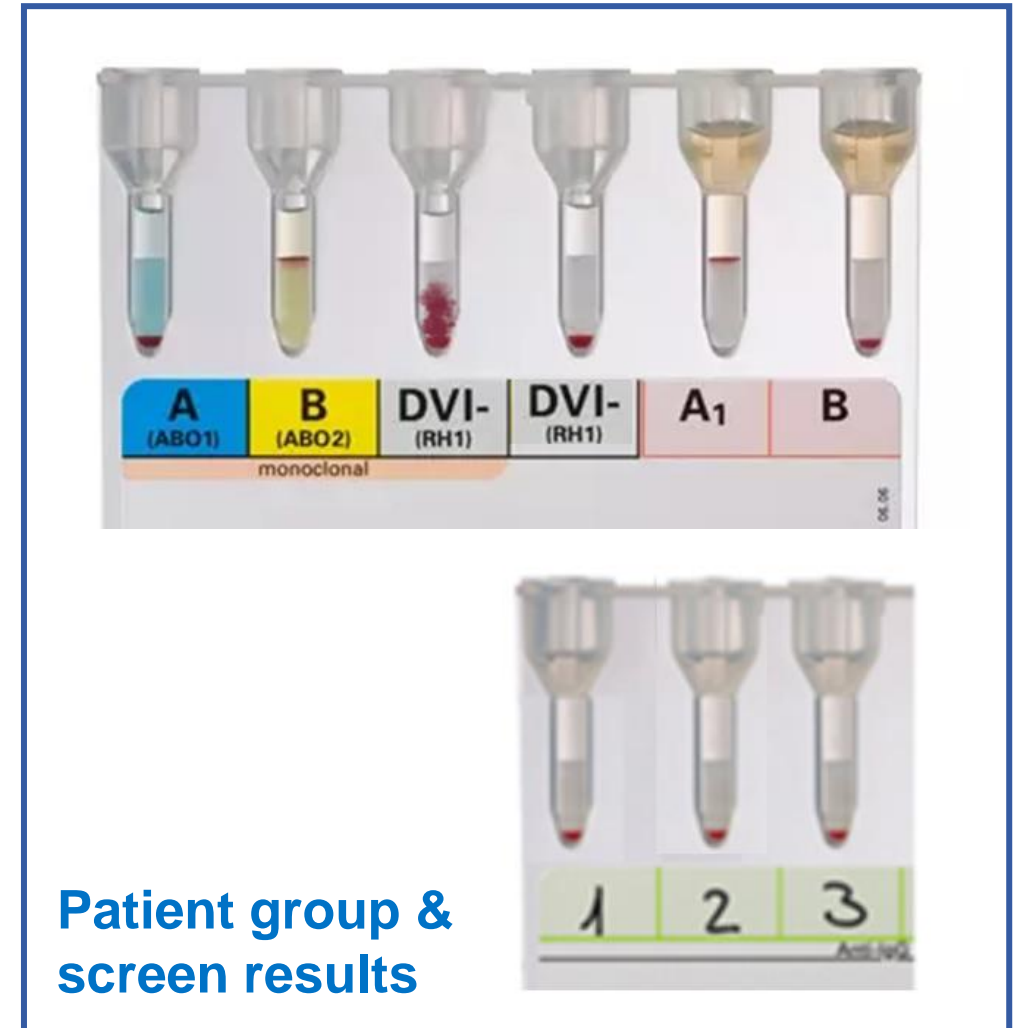
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Processing referrals using RCI Assist

- Log into RCI Assist via Sp-ICE or OBOS
- Click to read the disclaimer
- Tick to accept you have read the disclaimer
- Answer the questions using the patient results and history
- Select the Yes or No options to move to the next prompt
- Following the pathways, you will reach a final decision point and either enter result into your LIMS or refer to RCI
- If you are unsure, please call your local RCI centre to discuss

Case Example

- 35-year-old female
- Antenatal Group & Screen (booking at 11 weeks)
- First time seen by your lab
- No history on Sp-ICE
- Never been transfused



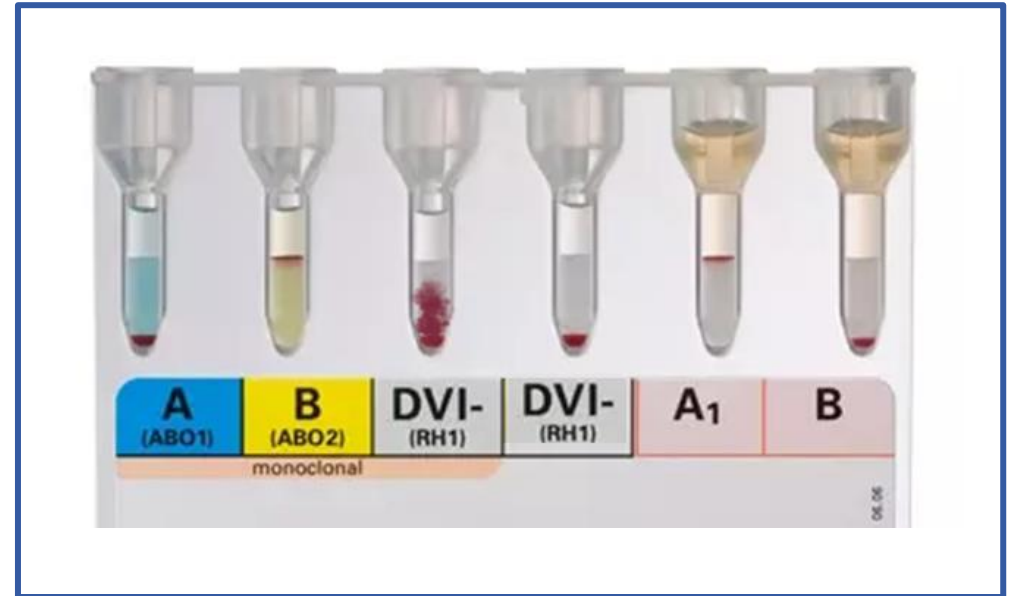
Is ABO and D group interpretable?



YES

NO

Click on the **information button** to learn more



Is ABO and D group interpretable?

NO



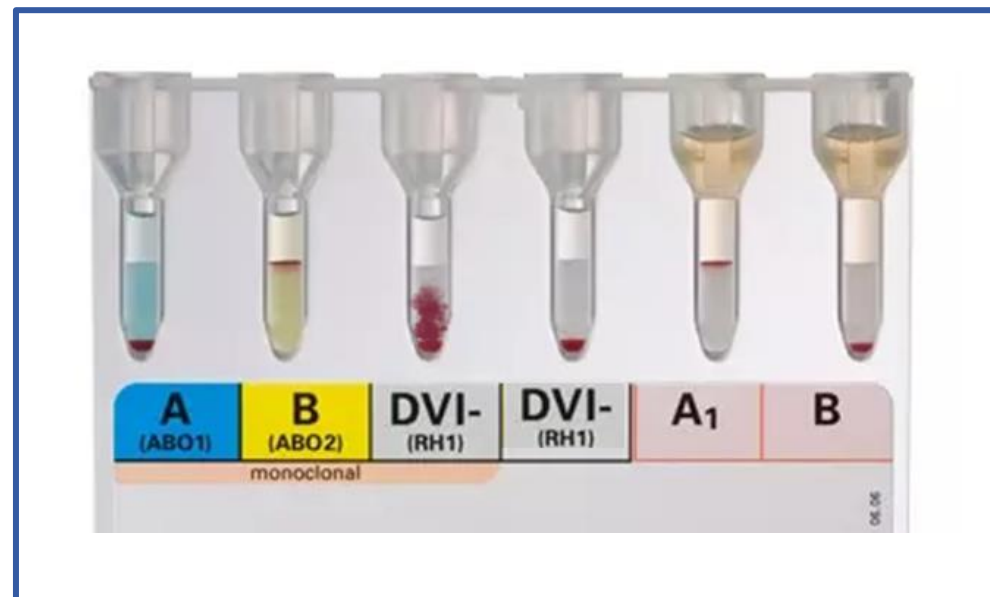
[Click to learn more](#)

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.

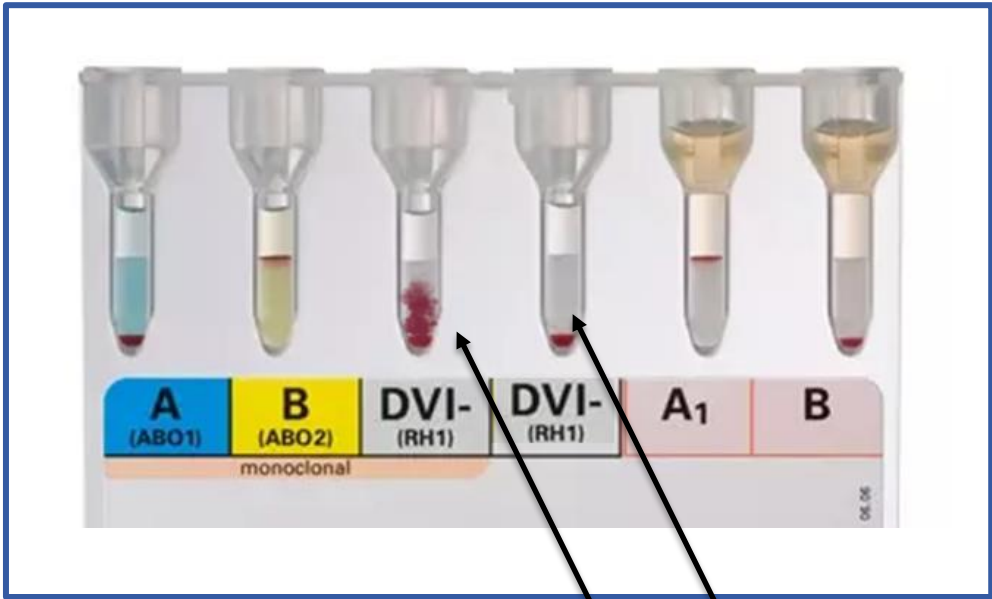
ABO forward group and D group show strong positive (3+/4+) reactions. Reverse group reactions may be weaker.



Is ABO and D group interpretable?

YES

NO



Do the forward and reverse groups match in accordance with Landsteiner's law?

Yes

Do the ABO forward group and D group show strong positive (3+/4+) reactions?

No – the D group does not show strong positive reactions

Therefore, the ABO and D group is **not** interpretable

Is ABO and D group interpretable?

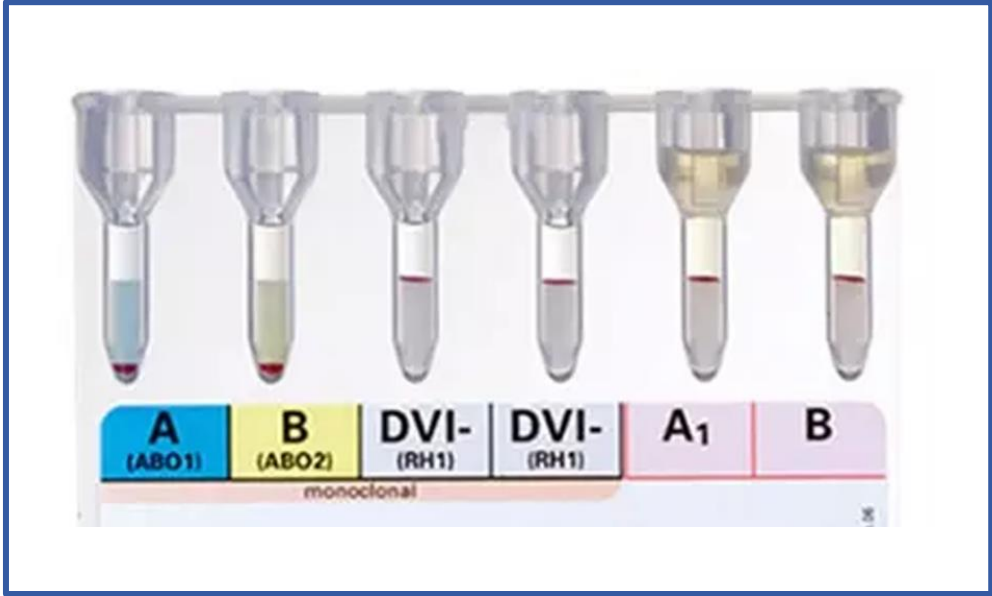


YES

NO



If the group *was* interpretable, you would select **Yes** to move onto the next option





Is ABO and D group interpretable?



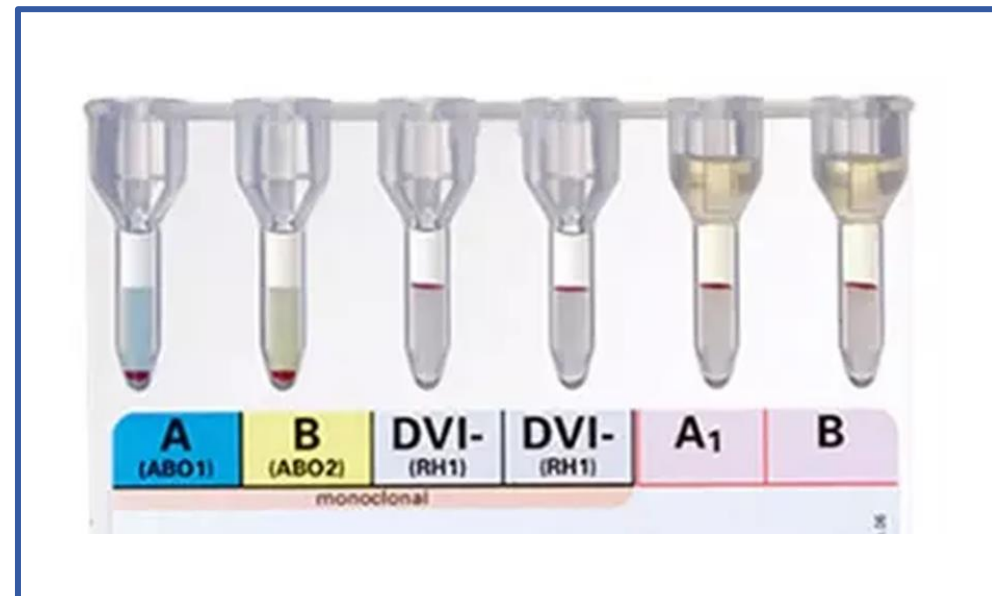
YES



Go to Antibody ID section

NO

Select button





Is antibody screen positive?



YES

NO

To move through the pathways, select **YES** or **NO** options next to the question boxes. The answer will depend on the patient results and/or history

Is antibody screen positive?



YES

NO

Or, if you want to jump to another section, select the required tab.



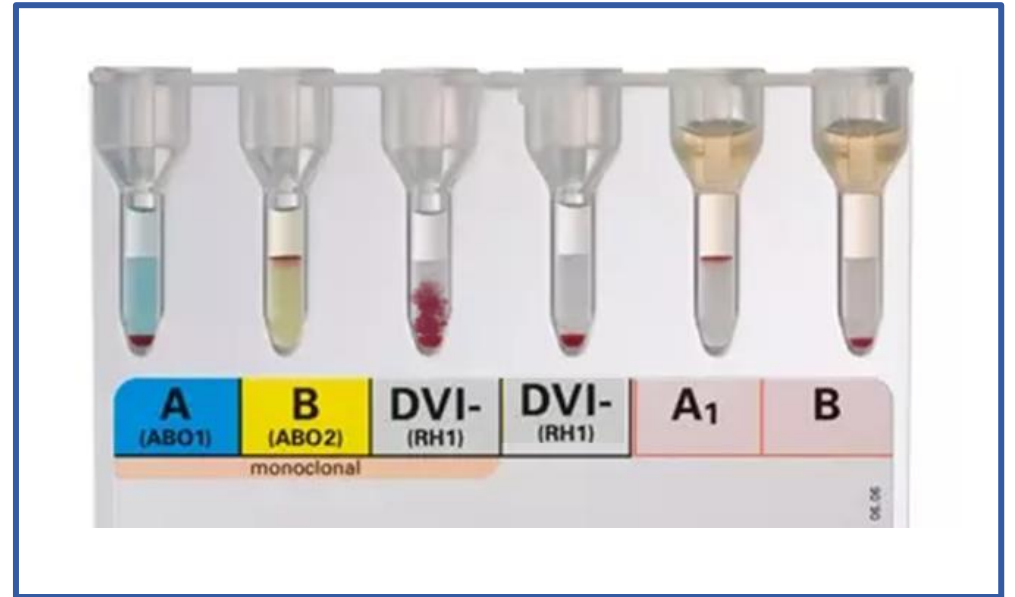
Is ABO and D group interpretable?

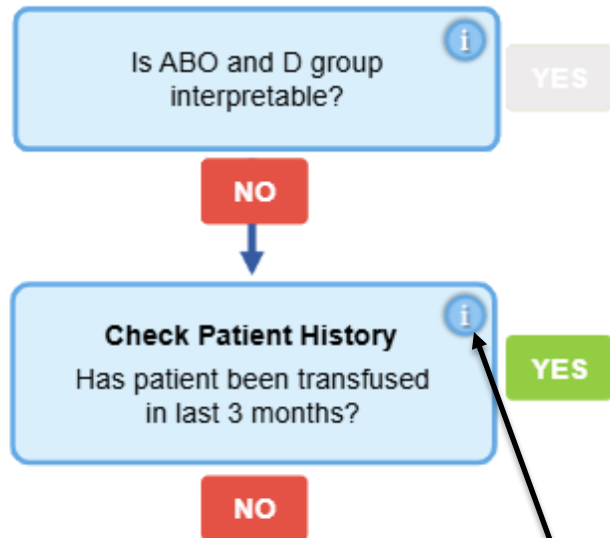


YES

NO

As the ABO and D group is **not** interpretable, select **No** to move onto the next option





Click on the **information button** to learn more



Is ABO and D group interpretable?



YES

NO

Check Patient History

Has patient been transfused in last 3 months?



NO

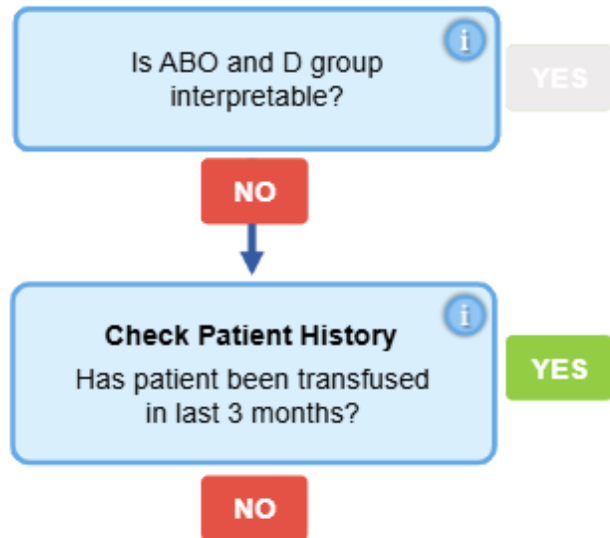
[Click to learn more](#)

Check Patient History
Has patient been transfused in the last 3 months?

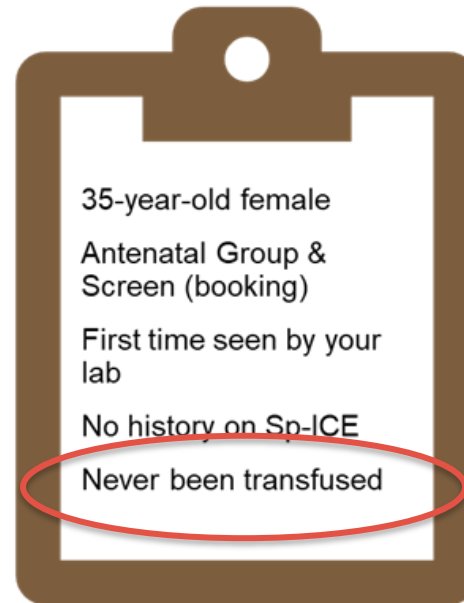
A previous transfusion is the most likely source of an anomaly with the ABO or D group. Consider any type of transfusion (red cells, platelets, FFP, Ivlg).

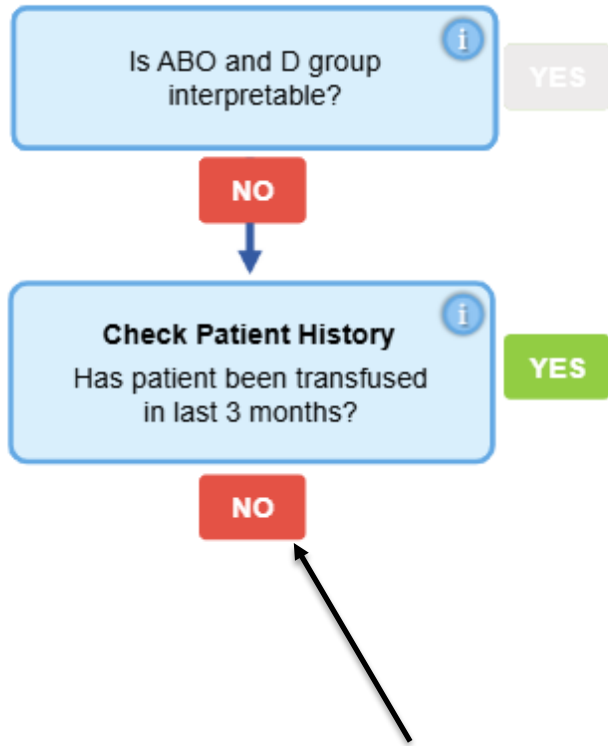
Dual populations arise in the case of red cell transfusion (ABO and/or D group not identical), whilst unexpected reactions may occur in the reverse group following transfusion with products containing plasma.



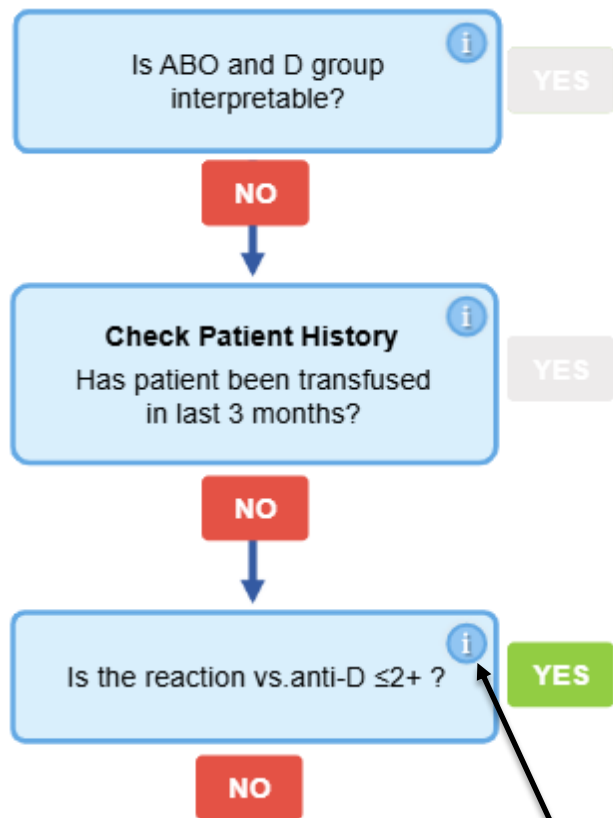


Check patient history





As the patient has **not** been transfused in the last 3 months, select **No** to move onto the next option



Click on the **information button** to learn more



Is ABO and D group interpretable?



YES

NO

Check Patient History

Has patient been transfused in last 3 months?



YES

NO

Is the reaction vs. anti-D $\leq 2+$?



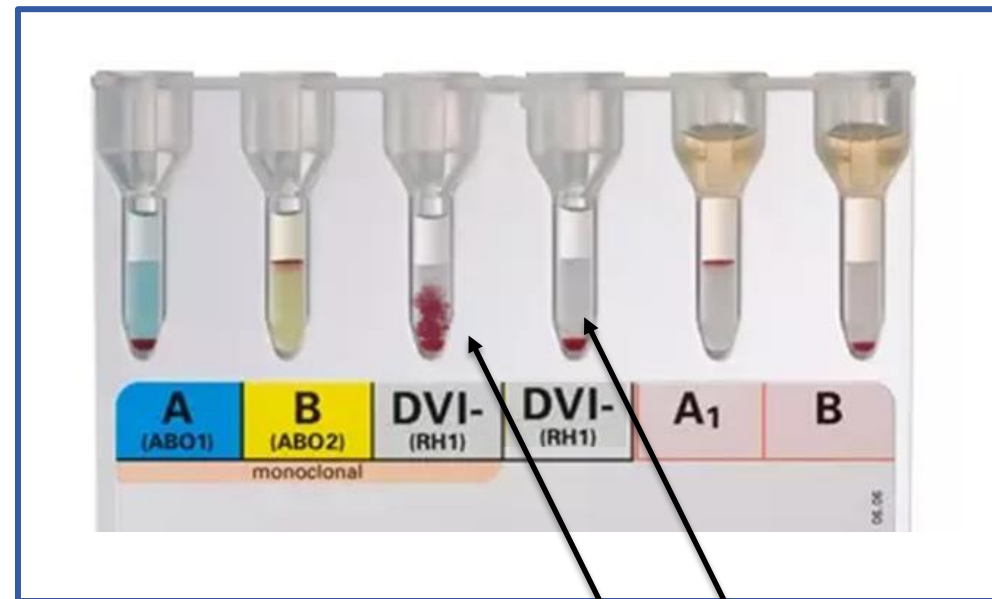
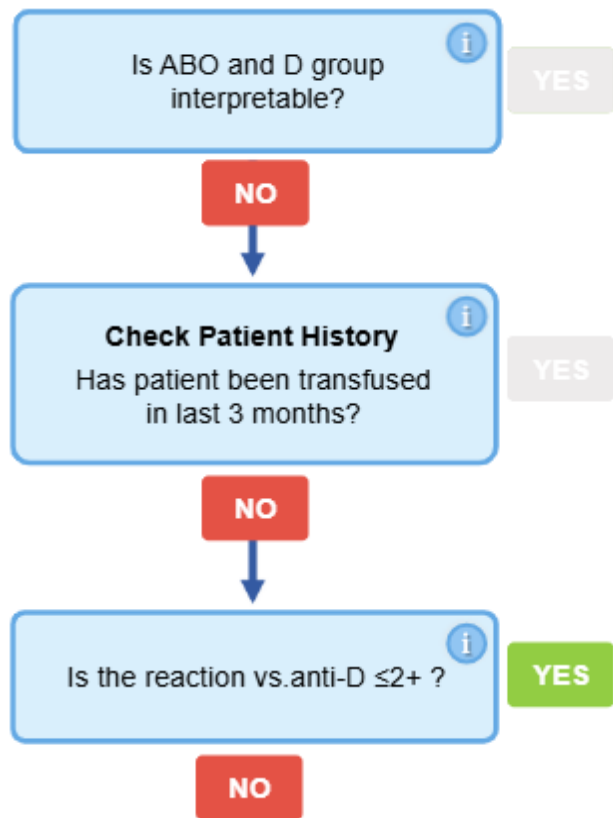
NO

[Click to learn more](#)

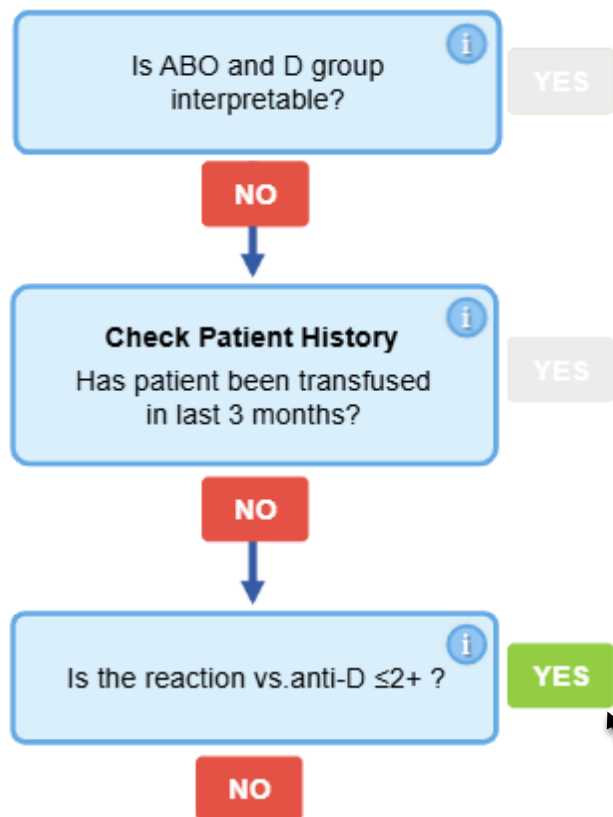
Is the reaction vs anti-D $\leq 2+$?

This patient may have an Rh D variant which can be investigated. D variant individuals can make alloanti-D. The exceptions to this are patients with weak D antigens of phenotypes 1,2,3 or 4.1; these have been shown to not make alloanti-D.

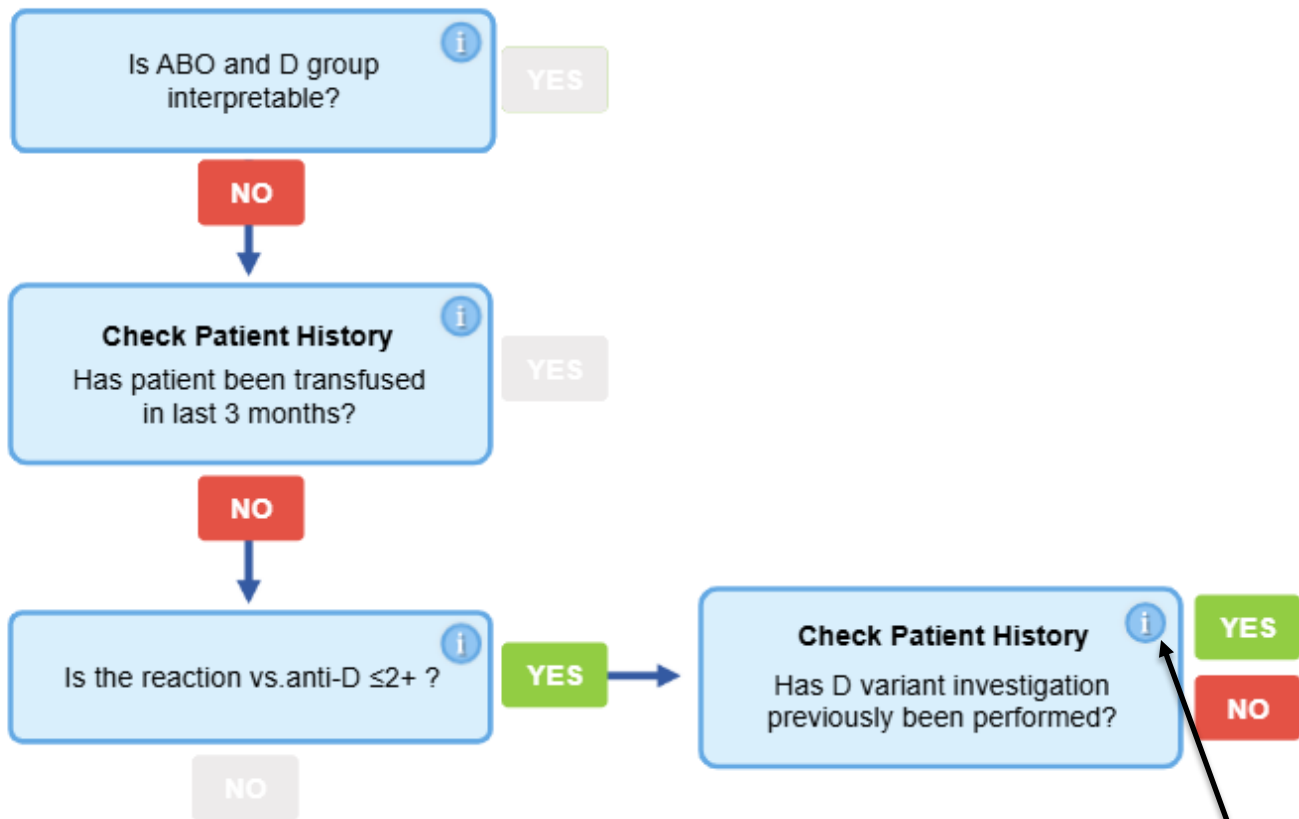




Is the reaction vs anti-D $\leq 2+$ or less?
Yes – the D group reactions is $\leq 2+$ or less



As the reaction vs anti-D is $\leq 2+$ or less, select **Yes** to move onto the next option



Click on the **information button** to learn more



Is ABO and D group interpretable? YES

NO

Check Patient History
Has patient been transfused in last 3 months? YES

NO

Is the reaction vs.anti-D $\leq 2+$? YES

NO

Check Patient History
Has D variant investigation previously been performed? YES NO

[Click to learn more](#)

Check Patient History
Has D variant investigation been previously performed? - in your hospital or by RCI.

Samples should be referred to RCI for D variant investigation where the result has a clinical impact. For example: women of childbearing potential, chronically transfused patients or the administration of anti-D prophylaxis in pregnancy. The clinical impact of D variant investigations on males or the elderly who do not fit into the category above is negligible. Follow BSH guidelines and your local trust policy.

Is ABO and D group interpretable? i YES

NO

Check Patient History i
Has patient been transfused in last 3 months? YES

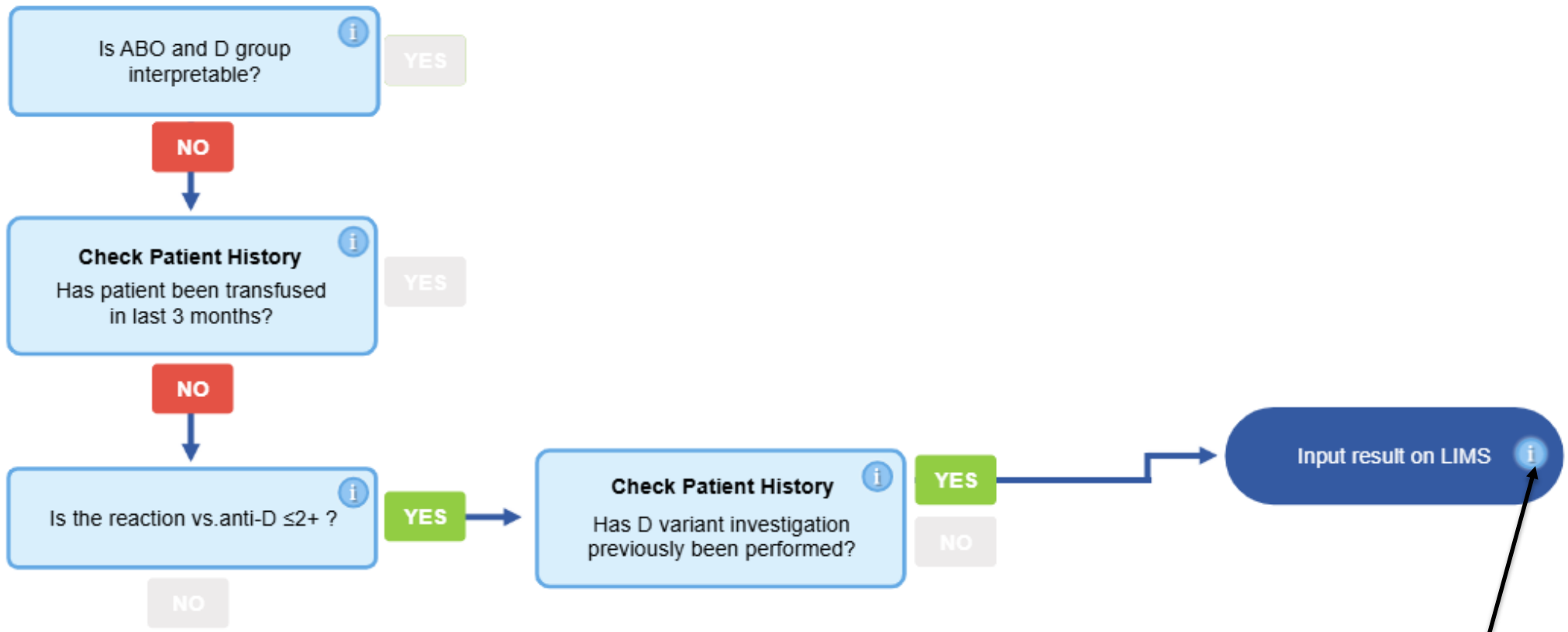
NO

Is the reaction vs.anti-D $\leq 2+$? i YES

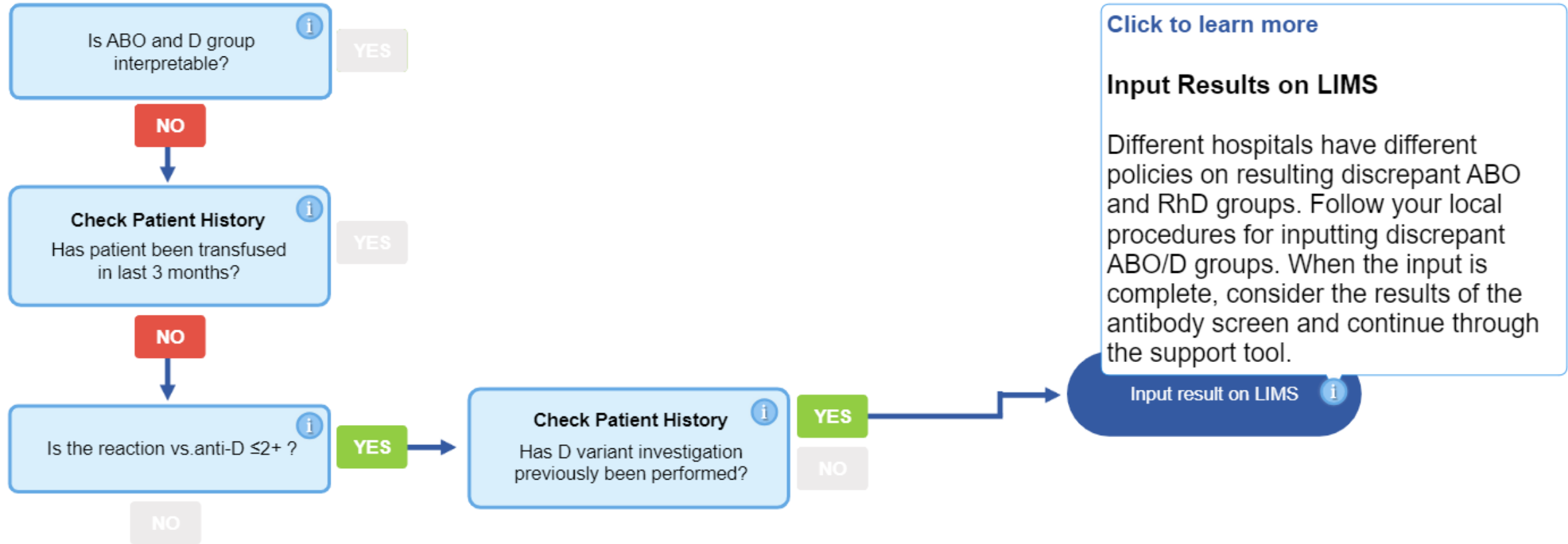
NO

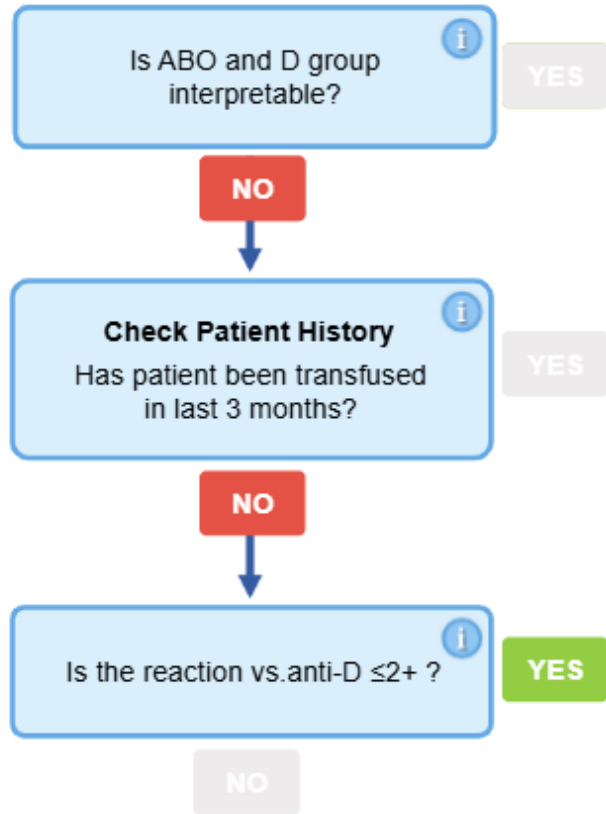
Check Patient History i YES
Has D variant investigation previously been performed? NO

If this patient has been seen by your hospital previously or results are available on Sp-ICE or confirmed by RCI, select **Yes**



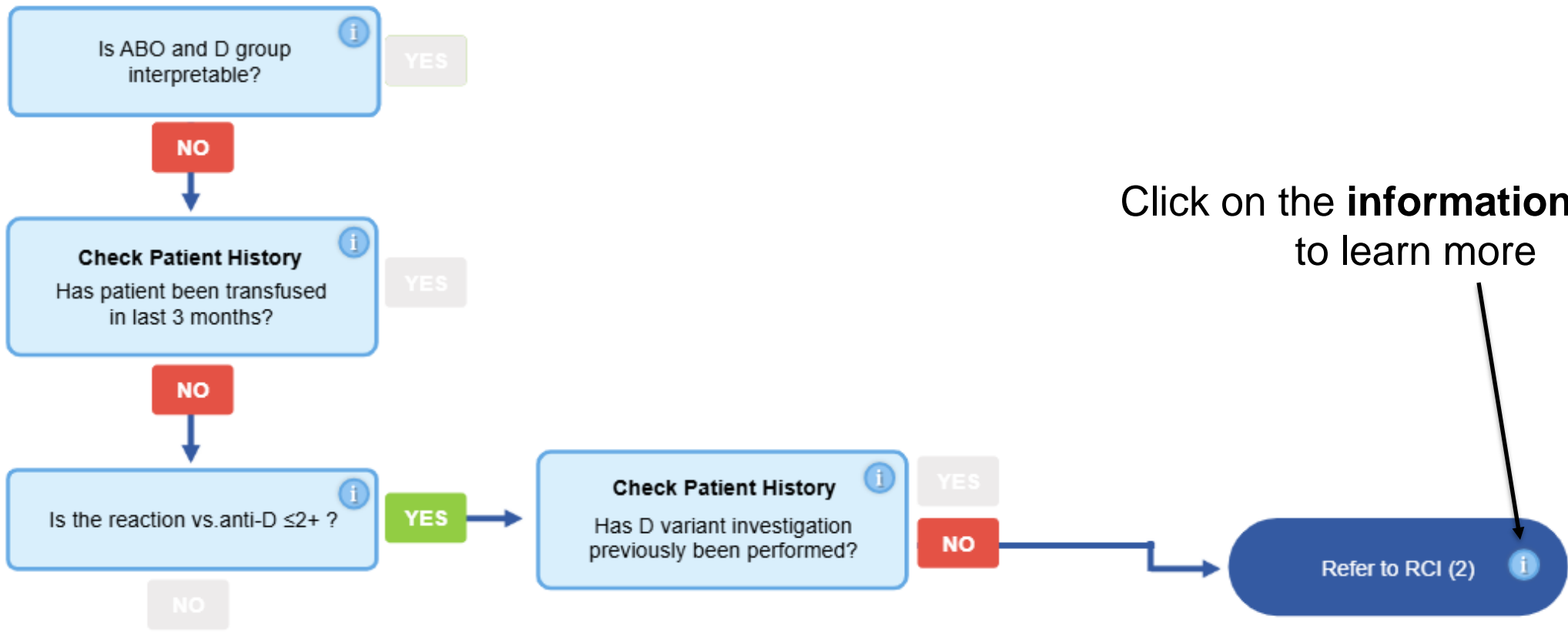
Click on the **information button** to learn more





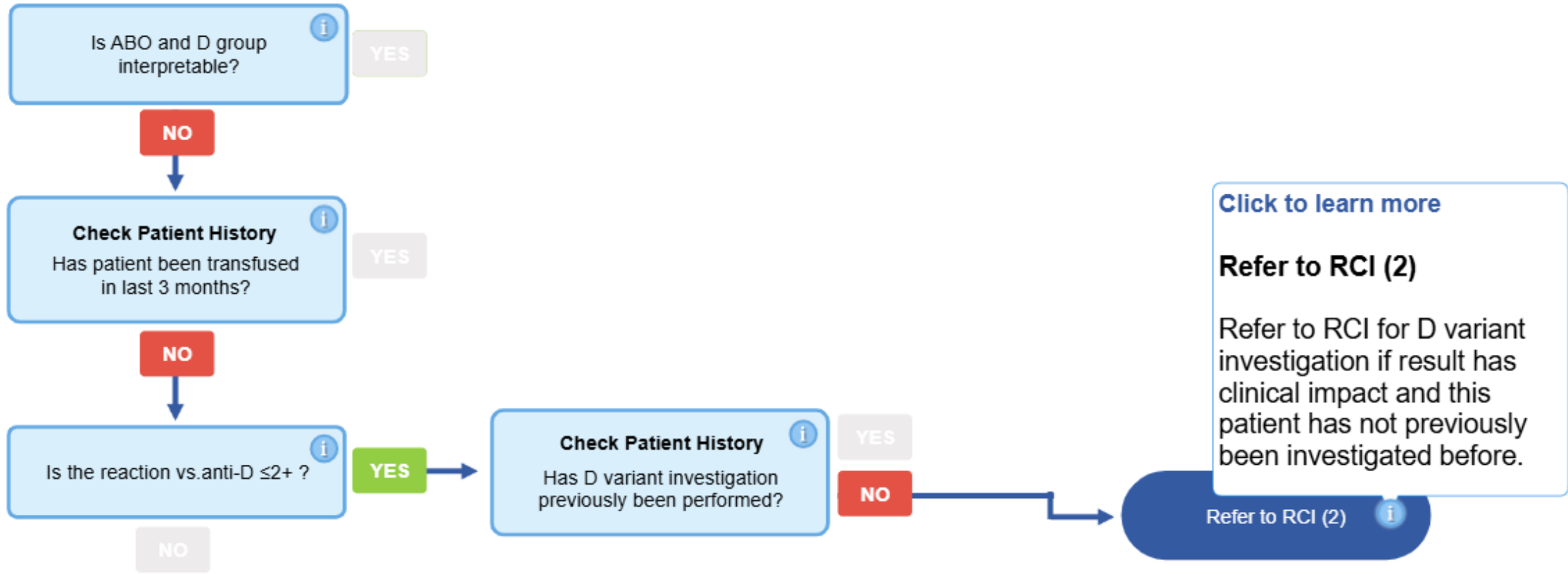
However, the history for this patient shows they have never been seen by your laboratory, there is no history on Sp-ICE, and a quick call to RCI confirms they have never seen this patient. Therefore, you must select **No** and move to the next option





Click on the **information button** to learn more





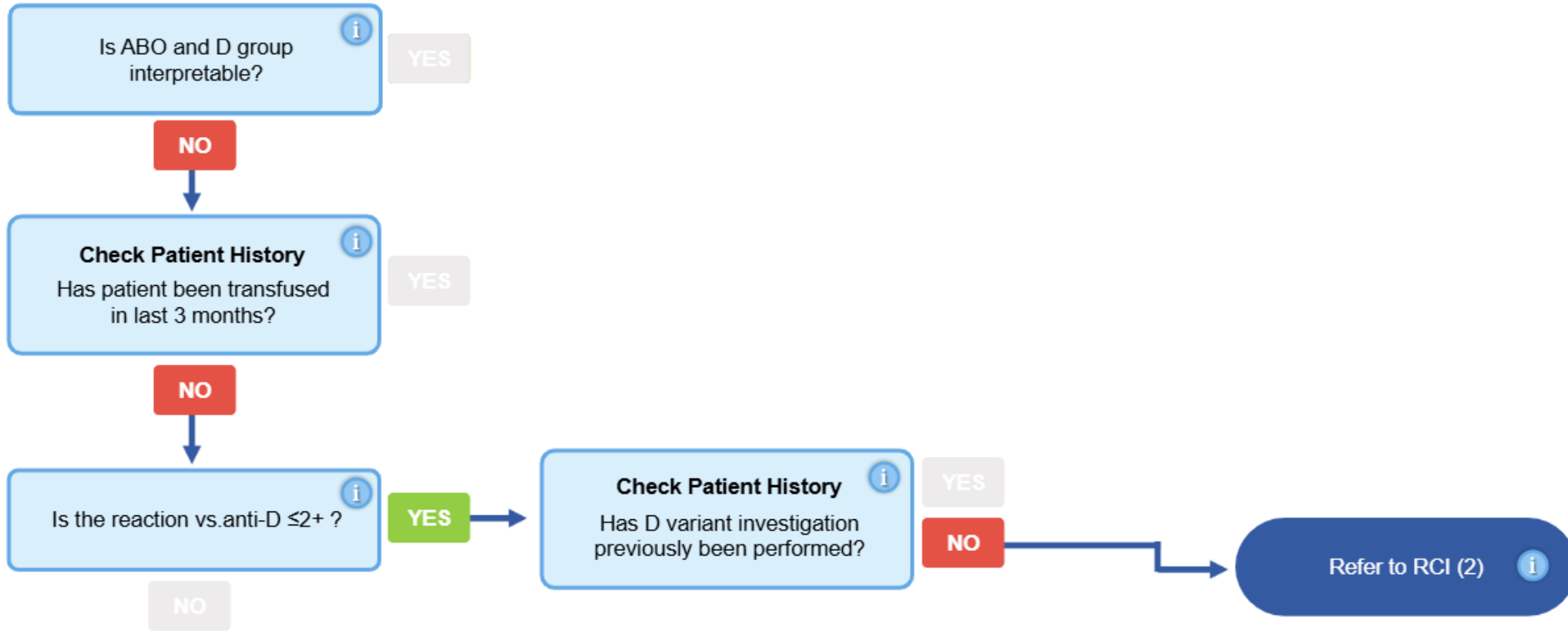
[Click to learn more](#)

Refer to RCI (2)

Refer to RCI for D variant investigation if result has clinical impact and this patient has not previously been investigated before.

Refer to RCI (2)

The pathway is now complete and referral to RCI would be made for this patient as there is clinical impact



You have the option to print your decision pathway. If you wish to do so, simply select the **print page** button

Print page option



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20/11/2024, 15:50 RCI Algorithm (v1.0) test

RCI Assist

Grouping Antibody ID Antigenal Paroxysmes Elutons Transfusion

```
graph TD
    Q1[Is ABO and D group interpretable?] -- NO --> Q2[Check Patient History  
Has patient been transfused in last 3 months?]
    Q2 -- NO --> Q3[Is the reaction vs anti-D s2+?]
    Q3 -- YES --> Q4[Check Patient History  
Has D variant investigation previously been performed?]
    Q3 -- NO --> R[Refer to RCI (2)]
    Q4 -- YES --> R
    Q4 -- NO --> R
```

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<https://360.articulate.com/review/content/22c82fd8-0dcd-4e2a-bcb2-8ff1fdeef6cf#review>

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Queries on RCI Assist

- For any queries relating to RCI Assist, contact your local RCI centre in the first instance
- For all other queries, please contact Hospital Customer Services on NHSBTCustomerService@nhsbt.nhs.uk and your query will be directed to the appropriate team

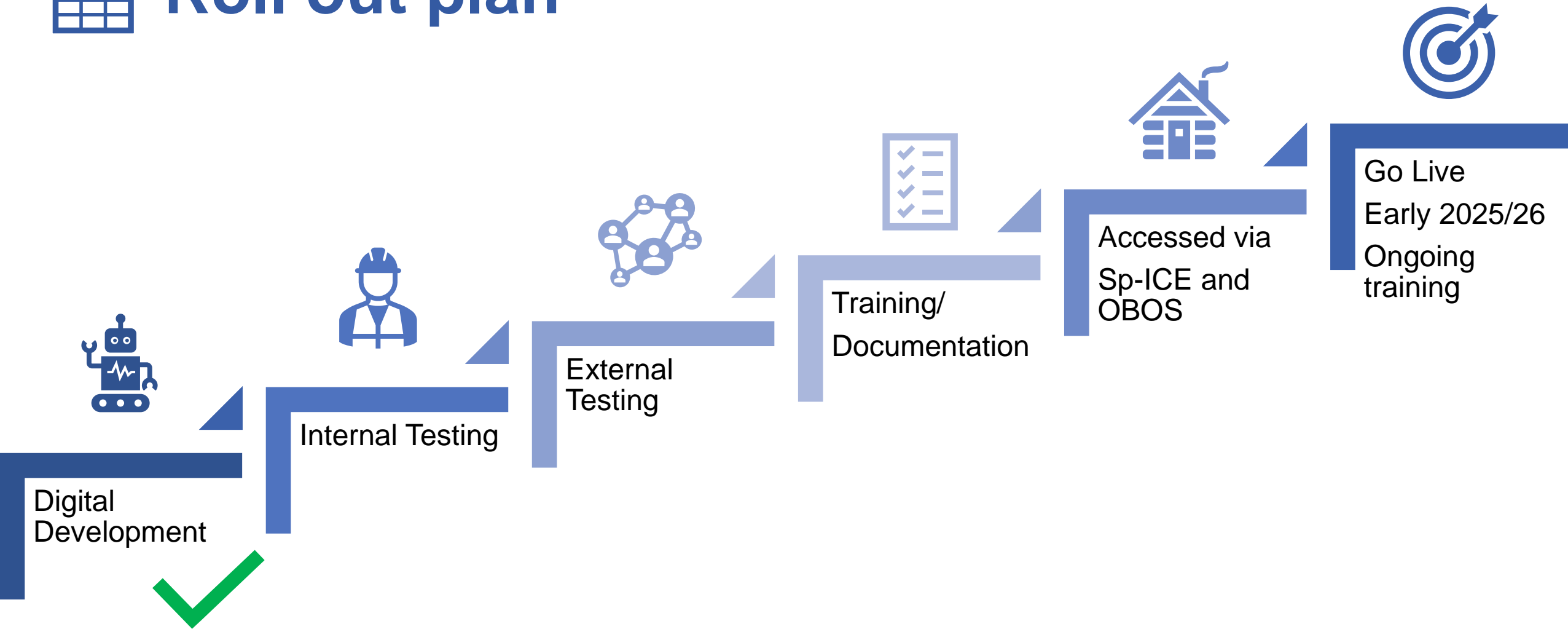


Roll out plan



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Acknowledgements



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Special thanks to...

Alex Hogan, Consultant Clinical Scientist Trainee (HSST)

Matt Bend, Blood Stock Management Scheme Manager

Gary Cavanagh, RCI Business Development Manager

Sophie Hoyle, Digital Learning Developer

Staff at RCI Newcastle and **Newcastle upon Tyne Hospitals NHS Foundation Trust**

Staff at RCI Barnsley and **Path Links Pathology Partnership**

Staff at RCI Tooting and **East and South-East London Pathology Partnership**

All those that took the time to provide feedback

Transfusion 2024, RCI and NHSBT Digital Learning Team



Please take part in this short survey

RCI Assist pre-roll out survey



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For further information on the project, please visit the NBTC website