New York Blood Center Enterprises

Genomics Laboratory

Understanding *RHD* Genotyping Results in Pregnancy:

Information for Obstetric Providers

Why is *RHD* genotyping performed?

Some patients inherit variant forms of the *RHD* gene that result in altered D antigen expression, commonly referred to as:

- Weak D
- Partial D

RHD genotyping helps determine whether a patient is at risk for forming anti-D, whether Rh immune globulin (RhIG) prophylaxis is indicated, and if it is safe to transfuse D-positive blood.

Current recommendations from an interorganizational work group on *RHD* Genotyping support *RHD* genotyping when a serologic weak D phenotype or discrepant D typing is identified in pregnant patients or females of childbearing potential.

Key Clinical Interpretation

Weak D Types 1, 2, and 3

- Are not considered at risk for Allo-Anti-D
- Can be managed safely as D-positive
- Are not candidates for RhIG

Weak D Types 4.0 and 4.1

- Generally, not considered at risk for Allo-Anti-D
- Out of an abundance of caution, may be managed as D-negative during pregnancy

Other variant *RHD*

Patients with other weak D or partial D variants may:

- Be at risk for forming anti-D
- Be managed similarly to D-negative patients during pregnancy
- Require RhIG prophylaxis

Why might the patient's D result appear to change?

Many hospital Laboratory Information Systems were originally designed to report only:

- D-positive
- D-negative

These systems may not fully support D variant interpretations. As a result, facilities may use different internal workflows or comments to communicate these test results.

In some cases, the displayed D interpretation may appear to change after *RHD* genotyping is completed.

This is a recognized limitation of some computer systems and does NOT represent a blood bank testing error.

Importance of Early Pregnancy Testing

When weak or discrepant D typing is identified, *RHD* genotyping should be ordered early in pregnancy so that results are available before routine antenatal RhIG administration decisions are needed.

This aligns with national recommendations supporting more precise and individualized Rh management in obstetric patients.

Contact Us

Please contact the NYBCe Genomics Laboratory to learn more about *RHD* Genotyping:

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References:
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