New York Blood Center

FACTS AND INFORMATION FOR **RHD GENOTYPING** to manage pregnant women and transfusion recipients with weak or discrepant D typing

Work Group on RHD Genotyping Publishes Recommendations for Managing Pregnant Women, Patients and Potential Transfusion Recipients Whose Red Blood Cells Express a Serologic Weak D Phenotype. *Transfusion* 2015; 55:680-689.

►PROBLEM

- A patient's **RhD type may be weaker than expected or discrepant** due to:
  - The variability in the level of detectable D antigen
  - Differences in the specificity and sensitivity of reagent anti-D
  - Variation in testing methods

- Patient's whose D type is weaker than expected may have partial D (and be at risk for anti-D) or may have weak D expression (and not be at risk).
  - Serologic typing cannot distinguish partial D from weak D to determine risk for anti-D

►SOLUTION

Patients can be managed based on risk of alloummunization according to their RhD genotype.

- **Persons who are genetically weak D types 1, 2 or 3 can be managed safely as D+.**
  - Since they are not at risk for anti-D, Rh immune globulin (RhIg) does not need to be administered and they can be transfused D+ blood products.
  - For women of childbearing potential knowing the RHD genotype will enable some of these women to avoid unnecessary RhIg and to receive D+RBCs for transfusion.
  - For chronically transfused patients, particularly with sickle cell disease, RHD genotyping may prevent antibody formation and may improve transfusion outcomes.

- The RH Work Group, representing members of AABB, CAP, ABC, ARC, and ACOG, recommends that RHD genotyping be performed whenever routine laboratory testing for RhD results in discordant or weaker than expected results*, especially for females, pregnant women, or potential transfusion recipients.

- **The immediate benefit will be fewer unnecessary injections of RhIg and increased availability of D− RBCs for transfusion.**

** A "serologic weak D phenotype" is defined as RBCs that react weaker than expected (usually <2+ by tube methods), and/or are non-reactive in initial testing but agglutinate with the addition of AHG. Each laboratory should develop a policy based on their individual experience, methods, and reagents.*

►REFERENCES

1. Sandler SG, Flegel WA, Westhoff CM, Denomme GA, Delaney M, Keller MA, Johnson, ST, Katz L, Queenan JT, Vassallo RR, Simon, CD. **It's time to phase in RHD genotyping for patients with a serological weak D phenotype.** *Transfusion* 2015;55:680-689.
2. Haspel RL, Westhoff CM. **How do I manage Rh typing in obstetric patients?** *Transfusion* 2015,55:470-4.
3. Flegel, WA, **How I manage donors and patients with a weak D phenotype.** *Curr Opin Hematol* 2006,13:476–483.
4. Kacker S, Vassallo R, Keller MA, Westhoff CM, Frick KD, Sandler SG, Tobian AA. **Financial implications of RHD genotyping of pregnant women with a serologic weak D phenotype.** *Transfusion* 2015 Mar 21. doi: 10.1111/trf.13074. [Epub ahead of print]

FOR QUESTIONS OR TO OBTAIN FURTHER INFORMATION CONTACT:
molecular@nybloodcenter.org or NYBC Genomics at 718.752.4637