REGIONAL MEDICAL LABORATORY

M E M O

To: Regional Medical Laboratory Clients

From: Brent Hartsell, MD, Chief of Blood Bank
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Date: April 15, 2011

Subject: **Changes to weak D Testing Procedures**

Effective immediately, following national standards recommended by the American Association of Blood Banks (AABB),the blood bank at St. John Medical Center and Regional Medical Laboratory will discontinue routine weak D (Du) testing for prenatal workups and pretransfusion testing. Weak D testing will still be available for all newborn cord blood samples. We will also confirm any discrepancies between typing at different laboratories by performing weak D testing upon physician request. With this policy change, any patient that is typed as Rh negative by our current methodology will be considered Rh Negative for the purpose of transfusion compatibility and administration of RhoGAM.

The AABB no longer requires weak D testing using antihuman globulin for routine prenatal or retransfusion testing, although it is still required to be performed by donor centers for blood donors and on neonatal cord blood since even a partial-D individual may alloimmunize a true Rh negative patient. These changes have been prompted over the last few years by an increasing concern over the risk of partial-D patients becoming alloimmunized to Rh D. Furthermore, current monoclonal reagents now in use are more sensitive. The reagent currently used by St. John Medical Center and Regional Medical Laboratory for determination of Rh status has been formulated to not detect the most common partial-D phenotypes. Discrepant Rh typing might occur if a patient has been previously determined to be Rh positive by a donor center or prior weak D testing has been performed by a laboratory using an Rh test with different sensitivity to Rh D.

The Rh D antigen is extremely immunogenic and has long been part of routine pretransfusion and prenatal blood typing. However, there are over 50 described mutations in the Rh D antigen, leading to both quantitative and qualitative variants. In Caucasians, approximately 95% of these mutations lead to a quantitative variation, historically often only detectable by additional testing using antihuman globulin, referred to as weak-D. Since the extracellular domains of these D antigens are otherwise normal, these patients were classified as Rh positive and are, for the most part, not at risk for alloimmunization when exposed to Rh positive blood products. However, there are qualitative variations in the D antigen, leading to a partial-D phenotype in which some antigenic epitopes involving extracellular domains may be missing. These patients may type as Rh positive, particularly in weak-D testing, but may be at risk for alloimmunization if exposed to missing D antigenic epitopes. While rare, this may result in an Rh positive individual developing an alloanti-D antibody which can put these patients at risk for hemolytic transfusion reactions or hemolytic disease of the newborn.

If there are questions or clinical concerns about the patient's Rh status, additional testing may be performed including weak-D testing. Please contact either of us at 918.744.2553 if you have any questions.