Paternal blood type testing in pregnancy

The prevention of hemolytic disease of the fetus and newborn (HDFN), due to Rh(D) incompatibility, requires the prophylactic administration of Rh immune globulin (WinRho®SDF). To ensure the appropriate management of a pregnancy for both mother and baby, a maternal blood group and antibody testing is performed at the first prenatal visit and again at 24-28 weeks' gestation. Women who are identified as Rh negative are considered candidates for Rh immune globulin (WinRho®SDF). However, Rh testing of the baby's biological father is needed to confirm that the mother truly requires administration of Rh immune globulin (WinRho®SDF).

The father of the baby (and the baby) are considered "donors" to the mother and may stimulate a maternal immune response directed towards the Rh(D) (Rh positive) antigen on the baby's red blood cells and cause HDFN. When the father's blood is tested and found to be Rh negative, by routine methods, the laboratory will do an additional more sensitive test to ensure there is no presence of a weakened expression of Rh(D) antigen that could lead to a maternal immune response. This additional more sensitive testing is known as a weak D test. If the father is determined to be weak D negative, they can safely be considered an Rh negative donor to the mother and the administration of Rh immune globulin (WinRho®SDF) can be omitted, eliminating the unnecessary transfusion of a blood product.

The weak D test is not performed on every Rh negative individual. When the mother is Rh negative, the father's blood type should be tested to determine maternal Rh immune globulin eligibility. However, laboratories **need to know** when a paternal blood type is being requested to ensure that the correct testing is performed and that the mother receives the appropriate prenatal care.

Here are the two situations when paternal blood type testing is done:

1. The maternal blood type in pregnancy is Rh negative. Paternal testing is being requested to determine the need for WinRho®SDF:
    a. Check off **ABO & Rh type (or blood type).**
        i. DO **NOT** check off antibody screen! This additional testing is not required, creates additional work for lab staff and is more costly.
    b. Add comment: **Paternal testing. Partner Rh negative.**

2. Maternal blood type and antibody testing shows that antibodies that can cause Hemolytic Disease of the Fetus and Newborn (HDFN) are present:
    a. Your laboratory will be familiar with the IWK Health 2-page laboratory requisition entitled "Pre and postnatal antibody investigation" which will ask for specific information in order to link the paternal sample to the correct woman with known antibodies and determine the type of antigen testing required.

If you have any further questions, please contact the Rh Program of Nova Scotia at 902-470-6458.