Citywide Rounds – OB/GYN University of Toronto

Topic: Non-Invasive Fetal Blood Group Genotyping: Moving Towards Precision Care for Pregnant Individuals in Ontario

Speaker: Dr. Barbra de Vrijer, MD, FRCSC – University of Western Ontario / London Health Sciences Center Victoria Hospital

Date: October 24, 2025

Questions from attendees	Answers
1. Are there international data evaluating the impact of implementing fetal RhD genotyping on rates of RhD alloimmunization?	Many European countries did not have a universal prophylactic RhIG administration practice prior to implementing fetal *RHD* genotyping. Because of this, direct comparison to countries like Canada, where routine antenatal RhIG has been used for many years, is not possible. However, evidence shows that fetal *RHD* genotyping is highly accurate (~99.9% sensitivity) and allows approximately 40% of RhD-negative pregnant individuals to safely avoid unnecessary RhIG injections. We therefore do not expect a change in alloimmunization rates, just a reduction of RhIG usage especially in pregnancies with an RhD-negative fetus that would receive RhIG unnecessarily. ***Reference:*** Ontario Health. Noninvasive fetal RhD blood group genotyping: a health technology assessment. Ont Health Technol Assess Ser [Internet]. 2020 Nov;20(15):1–160.
2. If other countries have discontinued routine cord blood testing after implementing fetal RhD genotyping programs, why is it still required here?	Several European countries continued the practice of cord blood testing continued alongside fetal *RHD* screening, until the false negative rate of the screening test fell below a set threshold. Once that threshold was met, cord blood testing was discontinued. Ontario is considering a similar phased approach where cord blood testing would remain in place during the initial implementation of fetal *RHD* screening. ***Note:*** Cord testing will continue to be performed for all **alloimmunized pregnancies** to support appropriate clinical management and monitoring of the newborn.
3. How can we access the clinical flow charts for each fetal blood group genotyping tests?	The clinical flowcharts for both FBGG tests, along with requisitions, patient and provider resources, and additional information, will be available on the Prenatal Screening Ontario website at www.prenatalscreeningontario.ca in the new year.
4. Who is responsible for reporting discrepancies between genotyping results and cord blood results?	Any healthcare provider who identifies a discrepancy between the fetal blood group genotyping result and the newborn's cord blood result can report it to the testing lab. This includes labor and delivery staff, ordering providers, and laboratory personnel. We are also working with Transfusion Medicine Laboratories (TML) to establish clear workflows and reporting processes as these new tests are implemented.
5. Will community labs be ordering and sending out fetal blood group genotyping tests if indicated?	Prenatal care providers (e.g., obstetrician, family physician, nurse practitioner, midwife, or MFM specialist) are responsible for ordering fetal blood group genotyping tests for eligible pregnancies. Blood samples may be collected at community laboratories and sent to the designated testing laboratories for analysis. Plans are in place to provide knowledge translation about these new tests to community laboratories. Relex testing from blood type and screens will not occur.
6. Will ultrasounds be required for RhD-negative patients to confirm a singleton pregnancy? What is the procedure if the pregnancy involves multiple fetuses?	The **fetal *RHD* screen** has not been validated on multiple gestations. A dating ultrasound is preferred to establish the EDD, to ensure the fetal *RHD* screen is performed after 11 weeks and to rule out multiple gestation. If an ultrasound is unavailable, the LMP may be used to determine EDD. The test should not be ordered for known multiple pregnancies, and RhIG should be given according to current guidelines. The **Allo-FBGG test** can be performed on multiple gestations.

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7. For patients requiring RhIG administration at 28 weeks, is repeat antibody testing needed on the same day?	Both the SOGC guideline No 448: Prevention of RhD Alloimmunization and the recently published article: Guidance for Prenatal, Postnatal and Neonatal Immunohematology Testing in Canada: Consensus Recommendations from a Modified Delphi Process support the following statement: A routine ABO, RhD and antibody screen may not be necessary at 28 weeks gestation for either RhD-positive or RhD-negative pregnancies. In routine, non-alloimmunized low-risk pregnancies, the practice of repeating a 28-week group and screen is controversial, as only 0.01%-0.43% of pregnancies with a negative first-trimester antibody screen develop a new alloantibody later in the pregnancy. The only reason to do a repeat antibody screen prior to administering RhIG is to detect a new anti-D and avoid unnecessary RhIG in patients who are already alloimmunized. This is not cost-effective and RhIG administration in those patients would not lead to harm. For this reason, some laboratories have already dropped this requirement, but this is really a decision to be made at your local level, with the transfusion laboratory that dispenses your RhIG. ***References:*** Fung-Kee-Fung, K., et al. (2024). Guideline No. 448: Prevention of RhD alloimmunization. *Journal of Obstetrics and Gynaecology Canada, 46*(4), 1–10. Lieberman, L., et al. Guidance for Prenatal, Postnatal and Neonatal Immunohematology Testing in Canada: Consensus Recommendations from a Modified Delphi Process. *Journal of Obstetrics and Gynaecology Canada,* 47 (9): 1-10.
8. When will Mount Sinai Hospital begin accepting Allo-FBGG samples for testing?	Both the Fetal *RHD* screen, performed by the Canadian Blood Services (CBS) lab in Brampton, and the alloimmunized fetal blood group genotyping (allo-FBGG) test, performed by the Mount Sinai Hospital in Toronto, are scheduled to be available in Ontario starting in January 2026. For the latest updates on any go-live dates, please visit the Prenatal Screening Ontario website at www.prenatalscreenignontario.ca. You can also subscribe via email on the website to receive notifications when the tests become available.
9. Have North American or Canadian data been established regarding consistency rates and false-negative results for these tests?	Validation of both tests is currently ongoing at the respective testing laboratories. Each lab will provide accuracy and performance metrics shortly. After launch, test performance will be monitored by Prenatal Screening Ontario through the Better Outcomes Registry and Network (BORN) Information System.
10. Is a separate requisition required to perform the Fetal *RHD* test for RhD-negative patients already undergoing NIPT screening for aneuploidy?	Separate requisitions are required for fetal *RHD* screening and NIPT for aneuploidy.

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11. Regarding Anti-M antibodies: how will the referral laboratory determine whether the antibody is IgM or IgG? Would using a prewarm method that eliminates reactivity be acceptable?	Centralization of the antibody testing (validation and titration) was not part of the project, and these decisions currently reside with your local or commercial laboratory. This matter was discussed with the transfusion hematologist and the laboratories involved in the ORBCoN Delphi. It is hoped that the laboratories will assume this responsibility and include a specification or advisory note with their antibody detection results for prenatal samples. **Example:** Our LHSC lab has developed the following protocol and result distribution for anti-M: 'The SOP for the M titration has been updated to include the treatment with DTT, and the reflex titrations that will be performed based on the results of that testing. Chartable canned comments will be added to our LIS system. Until the time that they are ready, we will result a BT comment, which will appear in PowerChart as one of the following: **BBTITRE-YES**: Patient has anti-_; DTT treatment detected an IgG component. Titres will be provided for this pregnancy. This fetus may be at risk for HDFN. **BBTITRE-NO**: Patient has anti-_; DTT treatment did not detect an IgG component. Titres are not indicated for this pregnancy. This fetus is not at risk for HDFN. **BBTITRE-INCONCLUSIVE**: Patient has anti-_; DTT treatment was inconclusive in detecting an IgG component. Titres will be provided for this pregnancy. While unlikely, this fetus may be at risk for HDFN.
12. Will test results be available on OLIS within 3–5 days when blood is collected after 11 weeks' gestation?	The turnaround time for fetal *RHD* screening and allo-FBGG testing is 10 business days. Once results are reported by the testing lab, they will be transferred to OLIS. The ordering provider will also receive a faxed or mailed copy of the test results. There may be situations where an expedited turnaround time may be requested (e.g. to identify if RhIG is required following an invasive procedure if the procedure is being scheduled at a later date). In these cases, please contact the testing lab directly using the contact information on the requisition. ***NOTE***: At anytime during pregnancy, if logistical issues delay or prevent obtaining a fetal *RHD* screen and/or result, standard RhIG administration should continue as current best practice. RhIG should only be withheld when a confirmed fetal RhD-negative result is available. In all other cases, RhIG should be administered according to existing clinical guidelines.