Fetal *RHD* Screening for RhD Negative Pregnancies

A Guide for Health-Care Providers

Clinical Pathway on page 4

Note: *For information on testing pregnancies that have anti-D, C, c, E and/or anti-K (Kell) antibodies, please refer to the document Fetal Blood Group Genotyping for Alloimmunized Pregnancies: A Guide for Health-Care Providers.*

Fetal *RHD* screening is a non-invasive blood test for pregnant individuals who are RhD negative. This screening test predicts the RhD status of a fetus using cell-free DNA from a pregnant woman/individual's plasma as early as 11 weeks' gestation. The screening results enable targeted antenatal RhD immune globulin (RhIG) administration by identifying pregnancies at risk of RhD alloimmunization.

Who Is Eligible for This Screening Test?

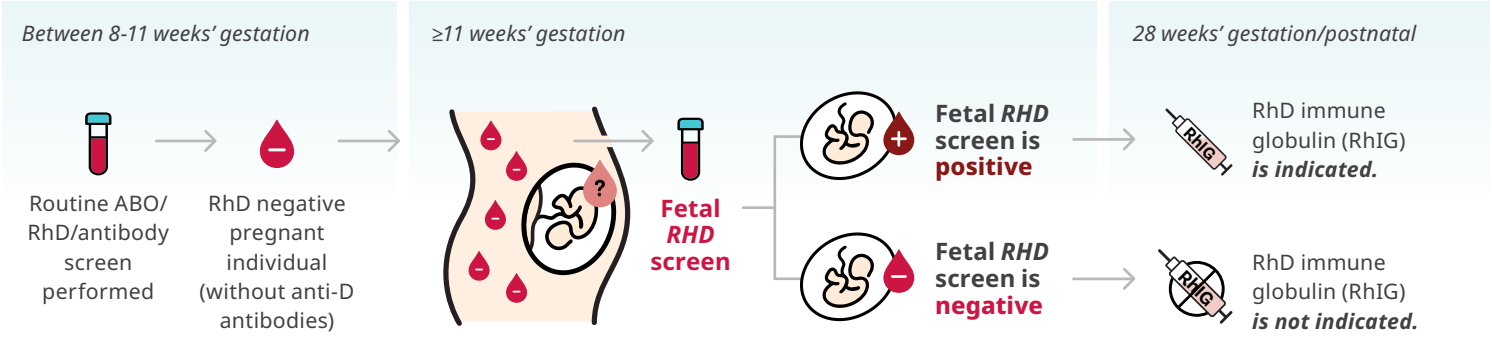
Fetal *RHD* screening is publicly funded for pregnant women/individuals living in Ontario, who:

- Are RhD negative
- Have not developed antibodies towards the RhD antigen (anti-D)
- Have a singleton pregnancy
- Do not have a known weak D phenotype or *RHD* variant

Ordering Fetal *RHD* Screening

1. **Confirm Blood Type & Antibody Status:** Confirm that the pregnant woman/individual is RhD negative and anti-D negative.
2. **Order Test:** The test can be ordered as of **11 weeks' gestation**. Requisitions can be downloaded from the PSO website here: prenatalscreeningontario.ca/tools-and-resources/fetal-rhd-screening-requisition
3. **Sample Collection:** Blood samples can be drawn at community or hospital labs across the province.
4. **Analysis & Results:** Blood samples will be sent to the Canadian Blood Services lab in Brampton for analysis. Results are typically available within 10 business days and are sent to the ordering provider by fax and posted in the Ontario Laboratory Information System (OLIS).

How Does Fetal *RHD* Screening Work?



Fetal *RHD* Screening for RhD Negative Pregnancies

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How to Interpret Fetal *RHD* Screening Results

Screening Result	Interpretation	Action
Positive	The fetus is predicted as RhD positive. This pregnancy ***is at risk*** for RhD alloimmunization.	Antenatal and postnatal **RhIG is indicated.**
Negative	The fetus is predicted as RhD negative. This pregnancy ***is not at risk*** for RhD alloimmunization.	Antenatal and postnatal **RhIG is not indicated.**

** For an **inconclusive or no result**, treat the pregnancy as if the fetus is RhD positive; antenatal and postnatal RhIG is indicated. Repeating the screen may be advised by Canadian Blood Services.*

Why Is Fetal *RHD* Screening Important?

Guides RhIG Treatment

If the fetus is RhD negative, RhIG is not needed, preventing unnecessary use of this human blood product.

Non-Invasive

This cell-free DNA screening test can predict fetal RhD status from 11 weeks' gestation using a blood test from the pregnant woman/individual.

Accurate

Fetal *RHD* screening has a 99.86% negative predictive value, indicating it is highly reliable in identifying RhD negative fetuses. About 1 in 1,100 truly RhD positive fetuses may receive a false negative result.

Up to 40%

of RhD negative pregnant women/individuals

will carry an RhD negative fetus and as a result ***do not require RhIG.***

Discussing Fetal *RHD* Screening with RhD Negative Pregnant Women/Individuals

Refer to the handout included in this package ***Fetal RHD Screening: A Guide for Pregnant Women/Individuals Who Are RhD Negative*** to guide your discussion.

Fetal *RHD* Screening for RhD Negative Pregnancies

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Frequently Asked Questions

Can Fetal RHD screening be performed if an RhD negative pregnant individual has antibodies other than anti-D?

Yes. Fetal *RHD* screening can be performed to predict the fetal RhD status in RhD negative pregnancies with antibodies other than anti-D.

Is it necessary for the partner's blood type to be tested?

No. Testing the partner's blood type is not required for this test.

Can I order non-invasive prenatal testing (NIPT) for aneuploidy and Fetal RHD screening at the same time?

Yes. Both tests may be ordered at the same time. However, each requires its own requisition form and a separate blood sample because they are performed using different assays at separate laboratories.

Can Fetal RHD screening be performed in pregnancies that have already received RhIG?

Yes. The administration of RhIG, and any resulting passive anti-D antibodies do not affect the accuracy of this test.

Can Fetal RHD screening be performed in multiple gestations?

No. This screening test has not been validated for multiple gestations; RhIG should continue to be routinely recommended in these cases.

Can Fetal RHD screening be performed when there has been a vanishing twin or a fetal demise in a twin pregnancy?

No. This screening test cannot be performed in these situations because cell-free DNA from the demised twin can lead to false-positive results.

Is Fetal RHD screening available to those without a valid OHIP card?

Yes. Fetal *RHD* screening is publicly funded for all pregnant women/individuals living in Ontario, regardless of OHIP status.

References:

1. Fung-Kee-Fung, K., et al. (2024). Guideline No. 448: Prevention of RhD alloimmunization. *Journal of Obstetrics and Gynaecology Canada,* 46 (4), 1–10. https://doi.org/10.1016/j.jogc.2024.102449
2. Lieberman, L., et al. (2025). 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. https://doi.org/10.1016/j.jogc.2025.103088
3. Robitaille, N., et al. (2025). National consensus statements for the prevention of maternal Rhesus D alloimmunization and management of alloimmunized pregnancies: A modified Delphi process. *Journal of Obstetrics and Gynaecology Canada.* Advance online publication. https://doi.org/10.1016/j.jogc.2025.103113

Visit our website to learn more:

Looking for more information?

Visit Prenatal Screening Ontario's website or speak with a genetic counsellor or a screening specialist on our Information Line:

prenatalscreeningontario.ca

PSO@BORNOntario.ca

PSO Information Line:
1-833-351-6490 or 613-737-2281

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Clinical Pathway for RhD Negative Pregnancies *(without anti-D antibodies)*

Legend
RhIG: Rho(D) immune globulin
FMH: fetomaternal hemorrhage

< 8 Weeks' Gestation

ABO/RhD blood type and antibody screen is ***not recommended.*** No RhIG required at < 8 weeks ' gestation[1] (even in sensitizing events)

First Trimester ≥ 8 Weeks' Gestation

First antenatal visit ≥ 8 weeks' gestation[1]
ABO/RhD blood type and antibody screen

↓

RhD negative, no anti-D antibodies

↓

Fetal *RHD* screen recommended ≥ 11 weeks' gestation

- Fetus RhD **negative** → **RhIG is not indicated** during pregnancy
- Fetus RhD **positive, inconclusive, unknown, or not done** → **RhIG** 300µg = 1500 IU[1] at 28 weeks' gestation and following potentially sensitizing events*

Second & Third Trimester

RhIG is not indicated during pregnancy

RhIG 300µg = 1500 IU[1] at 28 weeks' gestation and following potentially sensitizing events*

*For Potentially Sensitizing Events ≥ 8 Weeks' Gestation[1]

Spontaneous, threatened or induced abortion; molar pregnancy (partial or unknown); ectopic pregnancy; invasive procedure; external cephalic version

RhD negative, no anti-D antibodies

↓

Fetal *RHD* screen result positive, inconclusive, unknown or not done

- **≥ 8 to < 12 weeks' gestation** RhIG not routinely indicated; consider on a case by case basis[1]
- **≥ 12 to <20 weeks' gestation** RhIG 300µg = 1500 IU[1]
- **≥ 20 weeks' gestation** RhIG 300µg = 1500 IU (or adjusted dose as per FMH quantification)[1]

If a **Fetal *RHD* screen** was not done, consider ordering post-RhIG if it could avoid additional RhIG doses

After Delivery

Send cord blood for RhD typing for all RhD negative or RhD unknown pregnant women/individuals[1,2,3,†]

- If Fetal *RHD* screen was **negative** → **RhIG is not indicated** → Confirm cord blood is RhD negative
- If Fetal *RHD* screen was **positive** → Assessment of FMH for RhIG dosing[1] → **RhIG** 300 µg = 1500 IU within 72 hours of delivery[1] → Confirm cord blood is RhD positive
- If Fetal *RHD* screen was **inconclusive, unknown, or not done** *Cord blood results will guide RhIG*
  - Cord blood is RhD **negative** → **RhIG is not indicated**
  - Cord blood is RhD **positive** → Assessment of FMH for RhIG dosing[1] → **RhIG** 300 µg = 1500 IU within 72 hours of delivery[1]

† If discrepant results are found between Fetal *RHD* screen and cord blood results, use cord blood results and administer RhIG as per clinical guidelines[1]. Contact Canadian Blood Services to report discrepancy (905-494-5234; fetalRHD@blood.ca).

References:

1. Fung-Kee-Fung, K., et al. (2024). Guideline No. 448: Prevention of RhD alloimmunization. *Journal of Obstetrics and Gynaecology Canada,* 46 (4), 1–10. https://doi.org/10.1016/j.jogc.2024.102449
2. Lieberman, L., et al. (2025). 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. https://doi.org/10.1016/j.jogc.2025.103088
3. Robitaille, N., et al. (2025). National consensus statements for the prevention of maternal Rhesus D alloimmunization and management of alloimmunized pregnancies: A modified Delphi process. *Journal of Obstetrics and Gynaecology Canada.* Advance online publication. https://doi.org/10.1016/j.jogc.2025.103113

PRENATAL SCREENING DÉPISTAGE PRÉNATAL ONTARIO
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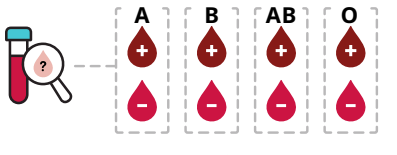
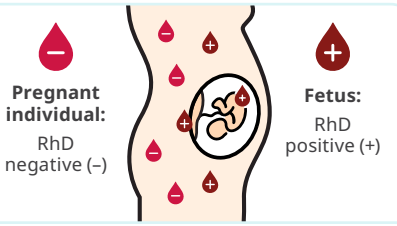
Fetal *RHD* Screening

A Guide for Pregnant Women/Individuals Who Are RhD Negative

Your Blood Type and Your Baby's Blood Type Are Important in Pregnancy

If you are RhD negative, Fetal *RHD* screening can help you find out early in pregnancy if your baby has a different blood type than you. This can help you and a health-care provider make important treatment decisions.





If your baby is RhD positive and your blood mixes, it can cause complications in future pregnancies.

Complications are prevented with RhIG treatment.

Blood Type and RhD

A health-care provider will check your blood type early in your pregnancy. There are four main blood types: A, B, AB and O. Each type can be RhD positive or RhD negative. RhD is a marker found on your red blood cells. If you have it, you are RhD positive. If you don't, you are RhD negative.

Why Does RhD Matter During Pregnancy?

RhD is important if you are RhD negative and your baby is RhD positive. During pregnancy or at delivery, a small amount of your baby's blood can mix with yours. This usually doesn't cause problems in your first pregnancy. But your body can remember the RhD positive blood and make antibodies. In a future pregnancy, these antibodies can react to the baby's blood and cause a condition called hemolytic disease of the fetus and newborn (HDFN). If this condition develops, complications such as severe jaundice (yellowing of the skin and eyes) and anemia (low red blood cells) can occur. Although uncommon, some babies may need blood transfusions before or after birth.

How Are Complications Prevented?

To prevent complications when your RhD status does not match your baby's, a health-care provider will recommend a treatment called RhD immune globulin (RhIG). RhIG is a blood product given as an injection. It works by stopping your body from making antibodies that could harm a future pregnancy. It is given at 28 weeks of pregnancy, after delivery and following any events that may cause blood mixing, such as bleeding, certain medical procedures or trauma. However, if your baby is RhD negative like you, you won't need this treatment.

Fetal *RHD* Screening

This screening test is done early in your pregnancy using a blood sample from you. Tiny pieces of your baby's DNA can be found in your blood to **predict if your baby is RhD positive or RhD negative.**

Knowing your baby's RhD status early in your pregnancy can help you and a health-care provider **decide if you need RhIG treatment.**

About 40% of RhD negative pregnant women/individuals are carrying a baby who is also RhD negative, so they **don't need RhIG treatment.**

Fetal *RHD* screening is very reliable and safe for you and your baby. **The results are over 99% accurate.**

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How to Get This Test

This screening test can be done as early as **11 weeks** into your pregnancy.

1

Discuss this screening with a health-care provider

If it's right for you, they will give you a requisition for the test.

2

Get your blood test

Take your requisition to a lab to have your blood drawn.

3

Wait for your results

Results are usually available within 10 business days and are sent directly to a health-care provider.

4

Discuss your results

A health-care provider will let you know your next steps and if RhIG treatment is recommended for you.

Who Can Get This Test?

Fetal *RHD* screening is publicly funded for all pregnant women/individuals living in Ontario who:

- Are RhD negative
- Have not developed anti-D antibodies
- Are pregnant with one baby (not twins or more)

Your Results and What to Do Next

Test Result	What It Means	Next Steps
Positive	Your baby is RhD positive.	RhIG treatment is recommended at 28 weeks of pregnancy, after delivery and following events that may cause blood mixing such as bleeding, certain medical procedures or trauma. Talk to a health-care provider about how and when to get this.
Negative	Your baby is RhD negative.	RhIG treatment is not needed. You can continue with routine prenatal care.

** If the test was unable to give a result **(inconclusive or no result)**, a health-care provider may ask you to repeat the test or treat your pregnancy as if your baby is RhD positive and recommend RhIG treatment.*

At Delivery

When your baby is born, your baby's RhD status will be confirmed using a blood sample from the umbilical cord. The cord blood results may be shared with the testing lab for ongoing quality assurance.

What If I Don't Have This Test?

If you are RhD negative and do not have this test, a health-care provider will treat your pregnancy as if your baby is RhD positive and recommend RhIG treatment to prevent complications in future pregnancies.

Looking for more information?

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prenatalscreeningontario.ca PSO@BORNOntario.ca

PSO Information Line: 1-833-351-6490 or 613-737-2281

Learn about your prenatal screening options at myscreeningpathway.ca