WIRhE: Worldwide Initiative for Rh Disease Eradication

Developing Educational Content to Help Eradicate Rh Disease

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BACKGROUND

Rh disease, also known as Rh incompatibility, is an inherited condition that occurs during pregnancy. In 2010, it was estimated about 373,000 babies were affected by the disease worldwide (1). The Rh factor is a protein found on red blood cells in some people, which determines whether their blood types as Rh positive or negative. However, a mother who is Rh-negative and delivers a child who is Rh-positive has a chance of developing Rh disease. During the pregnancy, the fetus's blood can pass into the mother's blood, most commonly during the delivery of the child. In Rh disease, the mother's immune system then responds to the baby's red blood cells and produces antibodies against those cells. These antibodies can damage and rupture the baby's blood cells, leading to what is called "hemolytic anemia."

While it has almost disappeared within the US, Canada, and western Europe through the use of prophylactic Rh immunoglobulin, it remains an issue across the globe. A recent analysis concluded that about 50% of the women worldwide who require prophylaxis do not appropriately receive it (2).

DESCRIPTION OF ORGANIZATION

WIRhE was a group founded in 2019 to help address the issue of Rh disease on an international level by empowering and enabling the efforts of diverse organizations and individuals. The newly developed website is intended to act as a central source of information and communication for these various parties.

SAMPLE PATIENT HANDOUT

Knowing Your Blood Type

WIRhE

Why should I know my blood type?

- **Pregnancy**: Women who have a certain blood type, known as Rh-negative, are at risk of developing Rh disease. This disease can occur when a Rh-negative mother has a Rh-positive child. The mother's immune system can react to the Rh-positive fetal blood cells, ultimately harming the fetus or newborn. Rh disease can be prevented if a medication is given during and immediately after pregnancy. Therefore, knowing your blood type is the first step in preventing this disease.

- **Donation:** Donating blood can save lives, and knowing your blood type ahead of time can help the blood bank, especially if they need a certain blood type.

How do I find out my blood type?

Talk to your healthcare provider about getting a simple blood test that can check for your blood type. This will involve taking a small sample of your blood for testing. Your blood type will never change, so you only need to have this test performed once in order to know your Rh status.

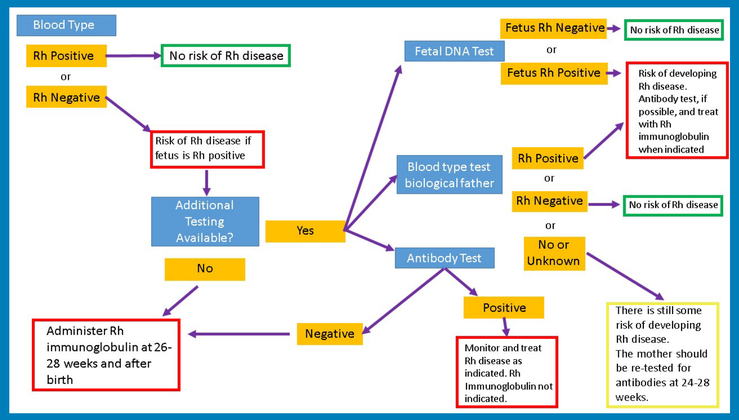
Different blood types:

Blood types are typically designated with a letter or letters followed by either a positive or a negative designation. Based on different sugars found on your red blood cells, your ABO blood type may be either Type A, Type B, Type AB, or Type O. All are considered normal.

The Rh factor is a protein, which may or may not be on your red blood cells. If the Rh factor is present, your blood type will be positive (+); if it is not on your cells, your type will be negative (-). Again, both are considered normal. The Rh factor is important during pregnancy, because Rh negative women are at risk for Rh disease.

Taking the ABO and Rh blood types together, there are 8 "major" blood types: A+, A-, B+, B-, AB+, AB-, O+, and O-.

SAMPLE GRAPHIC



DISCUSSION

As part of the push to advance WIRhE, a new website, in coordination with a European developer, is currently being built. As part of the new website, educational materials were assembled. Priority was given to materials that needed to be made available as soon as possible. These included information pages for both providers and patients. Recent and important papers in the field were also summarized and compiled. Importantly, via discussions with the WIRhE board of directors, the intended audience of the various educational materials was determined to be the following:

AUDIENCE:
- Providers (Doctors, Nurses, Midwives, Doulas, etc.)
- Patients (Mothers, Parents, etc.)
- Academics (Researchers, Institutions, etc.)

MATERIALS PRODUCED

- Patient Information Page
- Provider Information Page
- Patient Blood Type Handout
- Patient FAQ page
- Diagnostic Provider Graphic
- Literature/Paper Summaries x5

REFERENCES

1. Bhutani VK, Zipursky A, Blencowe H, et al. Neonatal hyperbilirubinemia and Rhesus disease of the newborn: incidence and impairment estimates for 2010 at regional and global levels. Pediatr Res. 2013;74 Suppl 1:86-100.
2. Pegoraro V, Urbinati D, Visser GHA, et al. Hemolytic disease of the fetus and newborn due to Rh(D) incompatibility: A preventable disease that still produces significant morbidity and mortality in children. PLoS ONE. 2020;15(7):e0235807.

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