



State of CT
Genetics Newborn Screening Program

Hemoglobin E and Sickle Cell Test For Newborns

Q: Why did my baby have this test?

A: All babies born in Connecticut have this test to check for Sickle Cell Trait, Hemoglobin E Trait, Hemoglobin C Trait, Hemoglobin D Trait or Sickle Cell Disease.

Q: What is Hemoglobin?

A: To understand Hemoglobin E, it is helpful to understand a little more about our blood. Hemoglobin is a protein found in red blood cells that carries oxygen and gives blood its red color. The way hemoglobin is made in the body depends on the genes a child gets from both parents. Most people have the type of hemoglobin called *hemoglobin A* (also called *normal* or *adult hemoglobin*). Hemoglobin E is a common but minor blood problem.

HEMOGLOBIN E TRAIT

Q: What is Hemoglobin E Trait?

A: Babies with Hemoglobin E Trait may have red blood cells that are slightly smaller than normal, and some red blood cells look like a bull's eye and are called target cells.

Q: Will Hemoglobin E Trait make my baby sick?

A: No! Hemoglobin E Trait is *not a sickness*. It is good to know about it. But it should *not* cause health problems or blood problems for your baby.

Q: How do babies get Hemoglobin E Trait?

A: If the baby gets a Hemoglobin E gene from one parent and a non-E gene from the other parent, the baby has Hemoglobin E Trait. Parents pass the E genes on to their children the same way they pass on the genes for skin color or eye color.

HEMOGLOBIN E DISEASE

Q: What is Hemoglobin E Disease?

A: A baby with Hemoglobin E Disease may have a mild anemia (low blood) and some red blood cells that look like a bull's eye, and are called target cells. Hemoglobin E may also occur with another common blood problem called Thalassemia.

Q: How do babies get Hemoglobin E Disease?

A: If both parents pass on the E gene to the baby, no Hemoglobin A is made in the body. Only Hemoglobin E is made.

Q: What is Hemoglobin E-Beta Thalassemia?

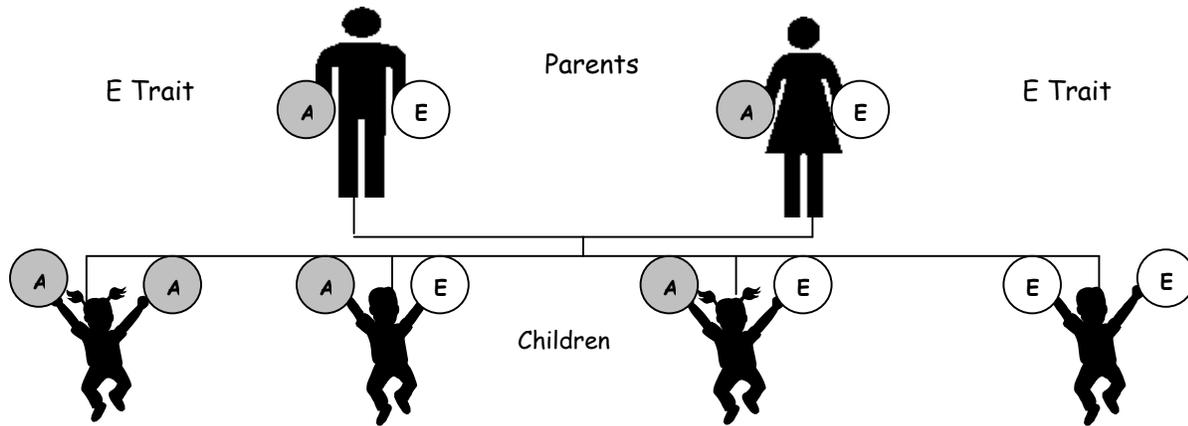
A: If one parent passes a gene for Hemoglobin E and the other parent passes a gene for Beta-Thalassemia to the baby, the baby will have Hemoglobin E-Beta Thalassemia. The Beta-Thalassemia gene causes the body to make less than the usual amount of hemoglobin. Hemoglobin E-Beta Thalassemia can be life threatening and people with this disease will need special medical care throughout their life. It can cause severe enlargement of the

liver and spleen, poor growth and changes in bones. Treatment for people with this disease includes repeated blood transfusions.

Q: Can E Trait turn into Hemoglobin E Disease or Hemoglobin E-Beta Thalassemia?

A: No! They are all different. One cannot turn into the other.

If both parents have Hemoglobin E Trait
A = Normal Hemoglobin Gene / E = Hemoglobin E Gene



Both Hemoglobin A genes
1 in 4 chance with each pregnancy of having a baby with 2 normal hemoglobin genes

Hemoglobin E Trait:
2 in 4 chance with each pregnancy of having a baby with Hemoglobin E Trait

Hemoglobin E Disease
1 in 4 chance with each pregnancy of having a baby with E Disease if both parents have E Trait

PARENTS

Q: Do all parents have Hemoglobin E genes?

A: No, Hemoglobin E genes run in some families and not in others. Families who trace their roots to Southeast Asia, especially Cambodia, Laos, Malaysia, Indonesia, Vietnam, and Thailand might carry the Hemoglobin E gene. China, the Philippines, India, and Turkey may also have hemoglobin E. The Beta-Thalassemia gene is found in people living in the Mediterranean countries, Greece and Italy, the Arabian Peninsula, Turkey, Iran, Africa, India, Southeast Asia, and southern China, and in people whose ancestors come from these countries.

Q: How can parents know if they have the Hemoglobin E gene?

A: You have to ask for a *special blood test, called Hemoglobin electrophoresis*. A little blood will be taken from your finger or arm.

Q: How can I get the test?

A: Ask your doctor or health care clinic to order a test for Hemoglobin traits.

FOR MORE INFORMATION CONTACT:

Yale/New Haven Hospital
Sickle Cell Service 203-785-4640

Connecticut Children's Medical Ctr.
Sickle Cell Service 860-545-9630

CT Department of Public Health
860-509-8081

