



Thalassemia

What is hemoglobin?

Hemoglobin is an iron-rich protein found on red blood cells that carries oxygen throughout the body. It also carries carbon dioxide from the body to the lungs, where it is exhaled. Normal hemoglobin has four protein chains – two alpha globin and two beta globin.

What is thalassemia?

Thalassemia is a genetic (inherited) disorder of the blood where the production of globin chains is reduced. If the alpha globin chain production is reduced, then the person has alpha thalassemia. If the beta globin chain is reduced, the person has beta thalassemia.

What are the types of alpha thalassemia?

Depending on the clinical features, Alpha Thalassemia can be classified as follows:

1. Silent Carrier of alpha thalassemia - 1 alpha gene abnormal
2. Alpha thalassemia trait - 2 alpha genes abnormal
3. Hemoglobin H disease - 3 alpha genes abnormal
4. Hydrops Fetalis - alpha thalassemia major - all 4 alpha genes abnormal

What are the types of beta thalassemia?

Depending on the clinical features, Beta Thalassemia can be classified as follows:

1. Thalassemia Minor
2. Thalassemia Intermedia
3. Thalassemia Major

How do I know that my child or I have alpha thalassemia?

The symptoms of alpha thalassemia depend on the number of genes involved. The spectrum ranges from an asymptomatic child to a life threatening disease.

1 alpha gene abnormal	2 alpha genes abnormal	3 alpha genes abnormal	4 alpha genes abnormal
Asymptomatic	Very mild symptoms	Hb H disease	Incompatible with life
Silent carrier	Mild anemia Small RBCs Increased RBC count Physicians may mistake carriers for iron deficiency anemia and may give iron which will not correct anemia	Anemia with enlarged liver and spleen May require frequent blood transfusions. This is followed by iron overload and necessity for chelation.	The child may have hydrops fetalis and may die before or shortly after birth. Rarely in-utero blood transfusions have been tried.



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How do I know that I have beta thalassemia minor?

It is impossible to know, that one has thalassemia minor. There are very few symptoms, one of them being mild anemia.

What are the problems that a patient with beta thalassemia minor is likely to face?

There can be tiredness, they may not be able to participate in competitive sports. Otherwise they live ESSENTIALLY NORMAL LIVES.

What are the precautions a patient with thalassemia minor needs to take?

Avoid iron tablets (after checking for iron deficiency)

Folic acid to be taken daily

Thalassemia screening for extended family is a must

Foods rich in iron should be avoided and those with poor iron content should be consumed as per the list given below.

	To Be Avoided	To Be Eaten
	High Iron Diet	Low Iron Diet
Cereals	Kottu, Bajra, Jowar	Rice, Maida, Bread, Tender maize
Pulses	Bengal gram roasted, Lentils (Soya beans, Rajma)	Red gram (masoor), Peas, Green gram
Vegetables	Leafy vegetables, Beans	Cabbage, Cauliflower, Arbi, Sweet potato, Bitter gourd (karela), Cucumber, Pumpkin, Lady Finger, Brinjal
Fruits	Apricots, Pineapple, Pomegranate, Chikoo	Apple, Guava, Banana, Grapes, Papaya, Orange, Cherries
Meats & Products	Beef, Liver, Egg yellow, mutton	Pomfret, Fish (Rahoo)
Miscellaneous	Jaggery, Almonds, Till, Dates, Raisins	Milk and all milk products
	Foods that Increase Iron Absorption	Foods that Decrease Iron Absorption
	Pickles, Vinegar, Fermented food, Soy sauce, Carrots, Vitamin C food like citrus fruits	Cereals like wheat bran, maize, oats, rice, and soy
	(Vitamin C food can be taken 3-4 hours after food intake)	Tea and coffee, especially with milk
		Dairy products like milk, cheese and yogurt particularly with meals Spices like oregano

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Iron fortified salt as well as wheat flour or infant feeding formulae are to be avoided. Do not cook with cast iron cookware (e.g. a wok) because iron from the cookware can transfer onto the food.

Additional foods recommended	<i>Rich in Vitamin E</i>
	Vegetable oils (olive, safflower, palm and soya oil), Ghee, Dairy products, Cereals, Nuts, Eggs
	<i>Rich in Folic Acid</i>
	Lentils, Egg Yolk, Dried Beans, Sweet Potato, Wholegrain Bread, Soya Products, Split Peas, Nuts, Bananas and Peaches
	<i>Rich in Zinc</i>
	Chicken, Fish, Dairy products, Unrefined wheat, maize and rice

Calcium and Vitamin D supplements may be needed.

SPECIAL PRECAUTION

At the time of marriage, it is imperative to test the partner for thalassemia minor, to avoid the birth of a thalassemia major child.

(Check for Thalassemia before checking the Kundali)

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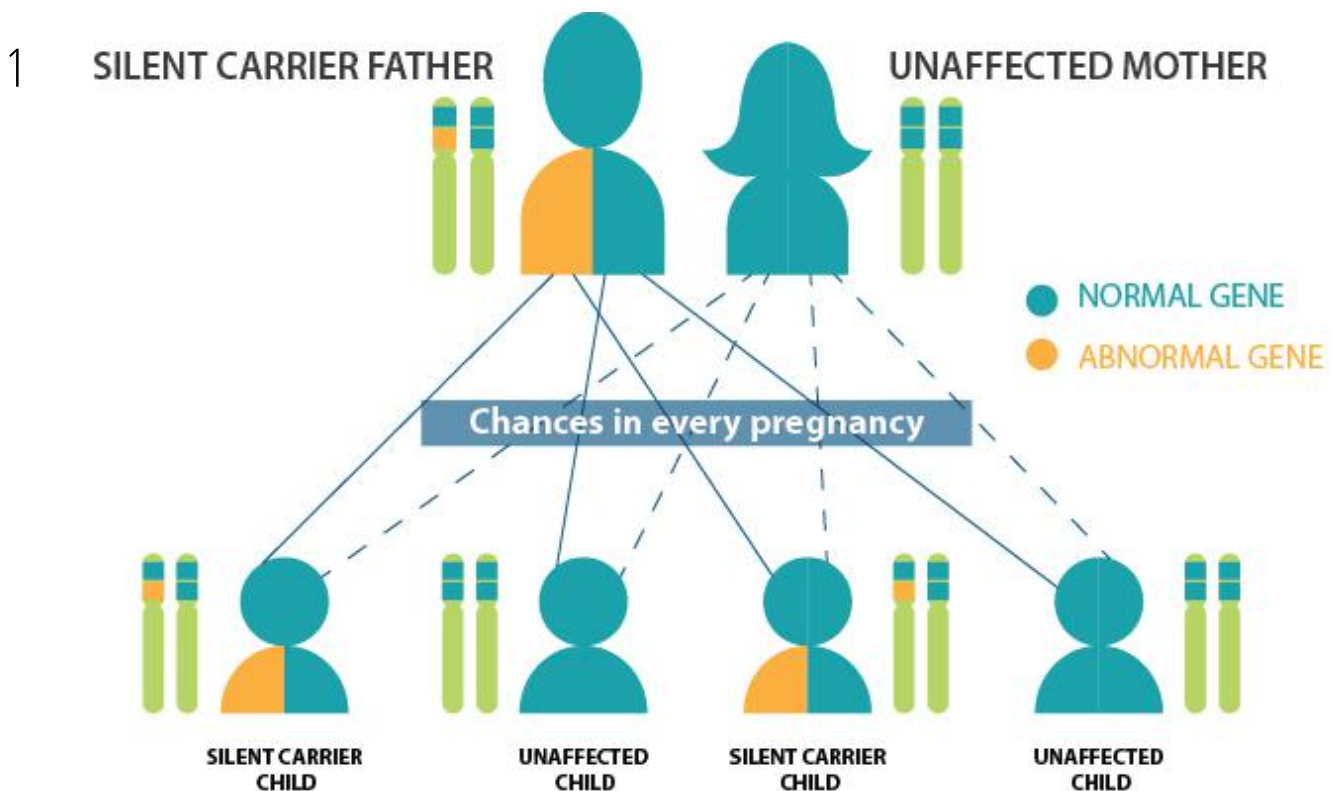
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How does a person get alpha thalassemia?

Since thalassemia is a genetic disease, the patient gets it from the parents and he/she can pass it on to the children. It is an autosomal recessive disease and the following are the possibilities.



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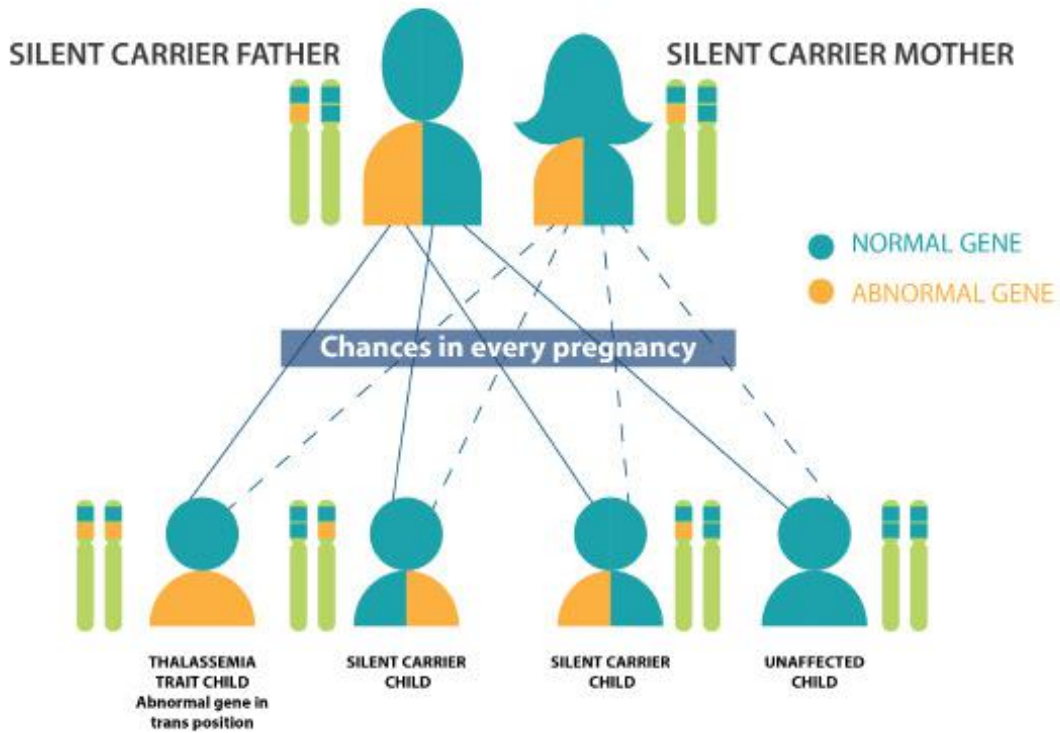
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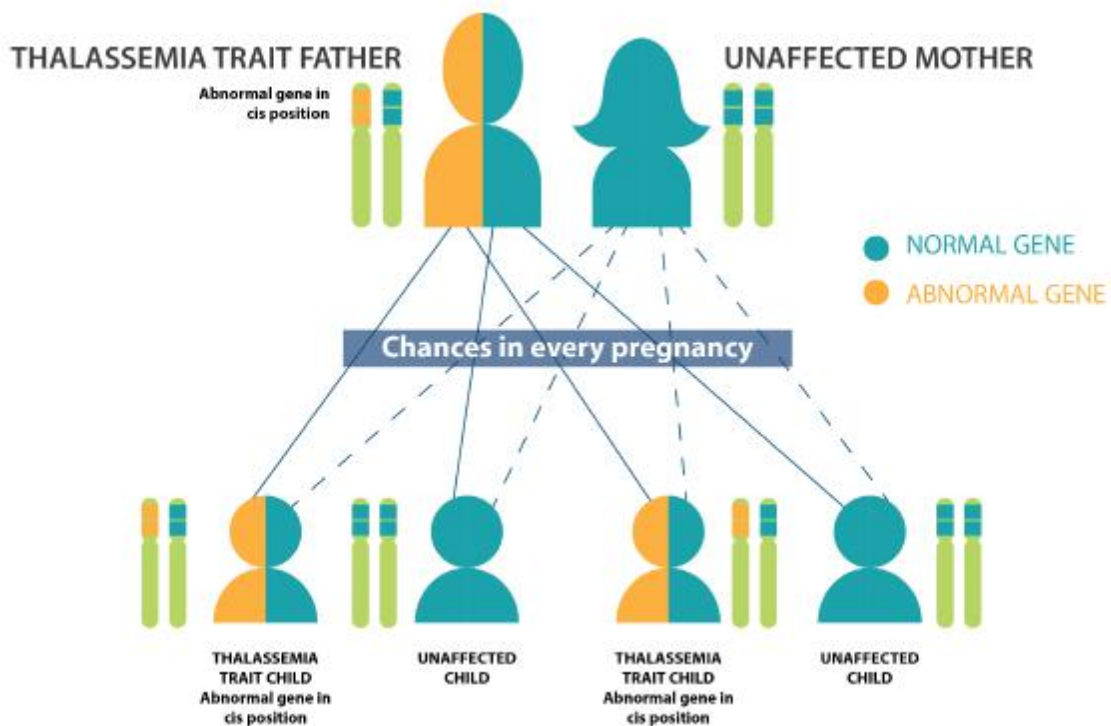
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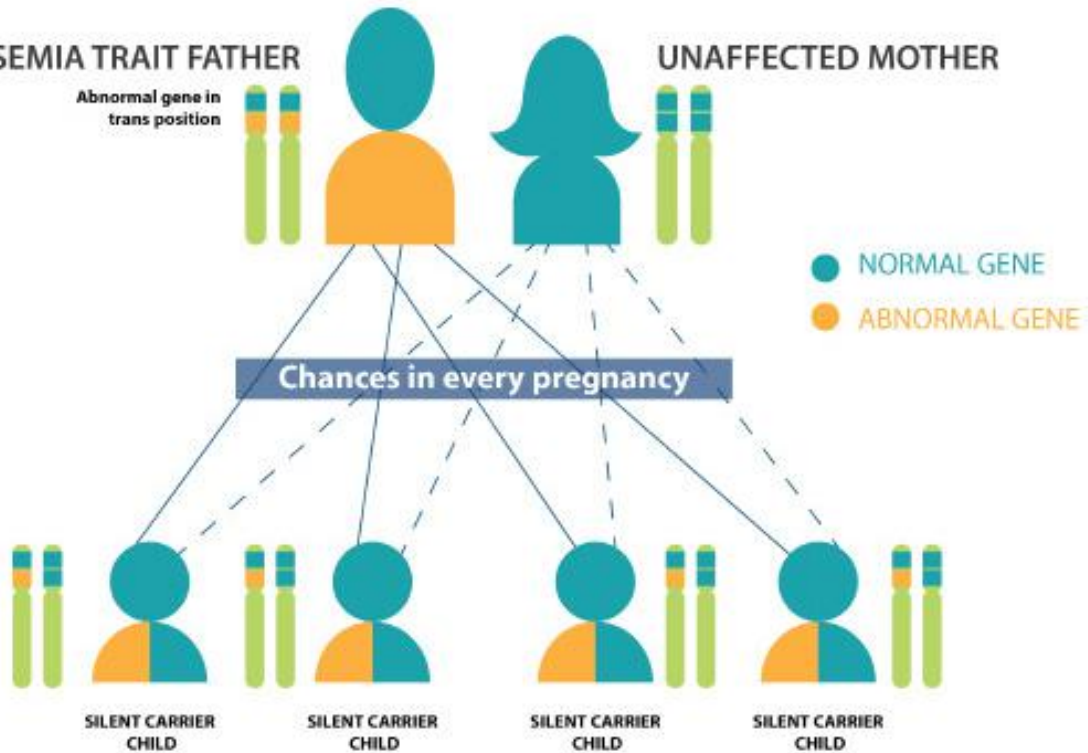
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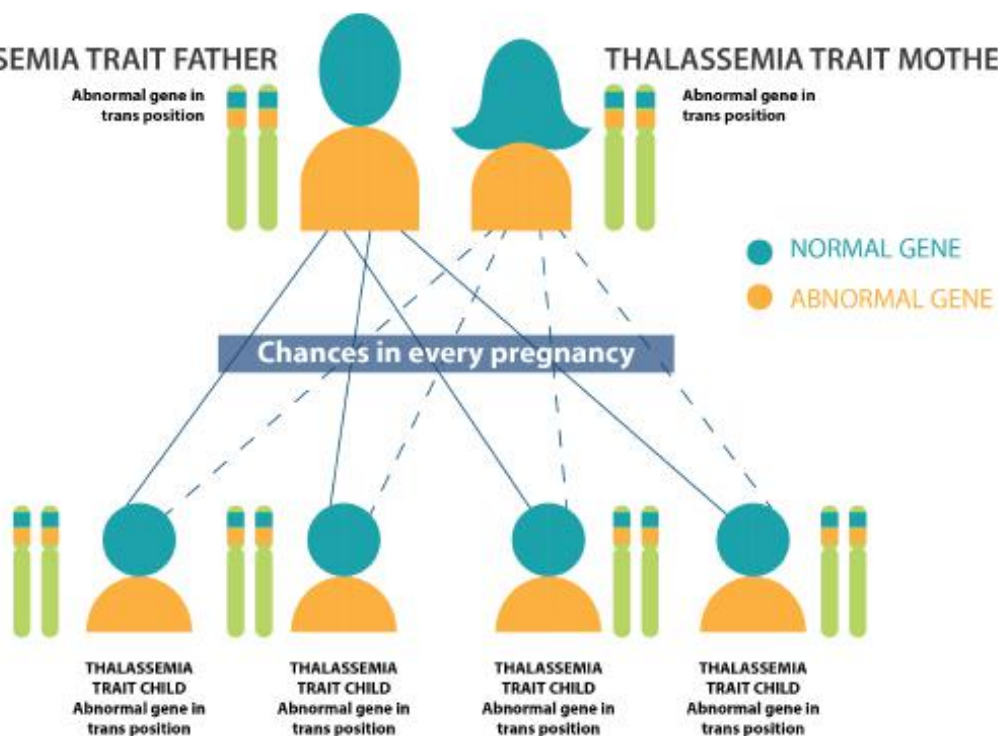
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4 THALASSEMIA TRAIT FATHER UNAFFECTED MOTHER



5 THALASSEMIA TRAIT FATHER THALASSEMIA TRAIT MOTHER



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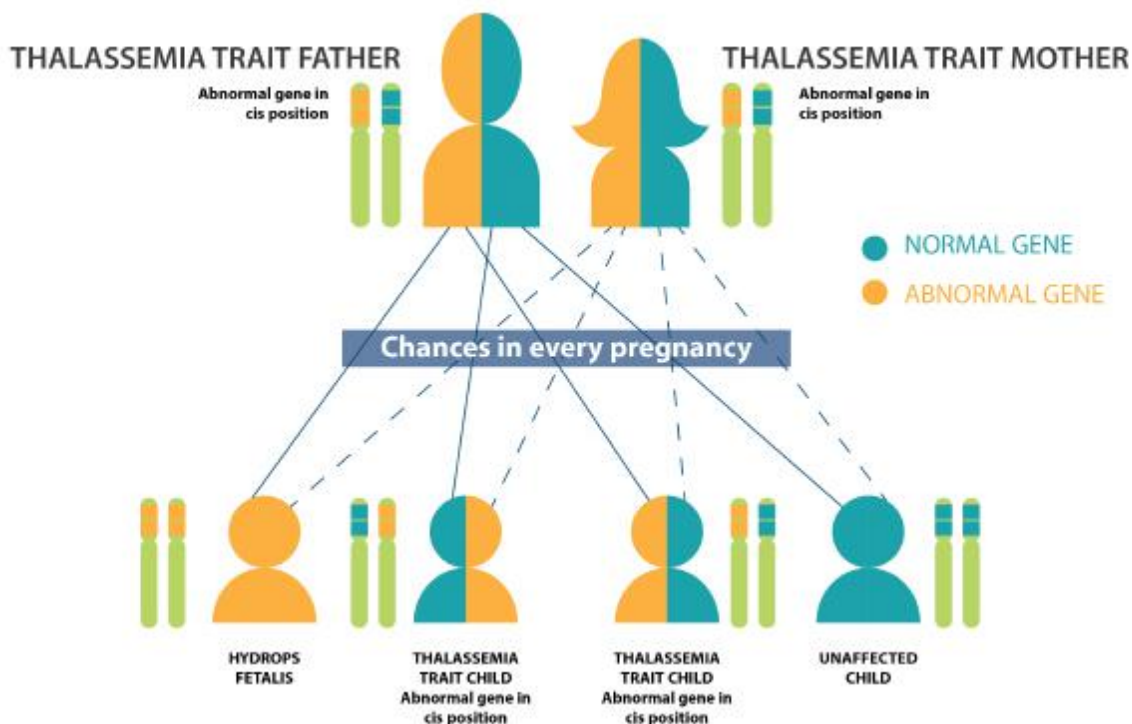
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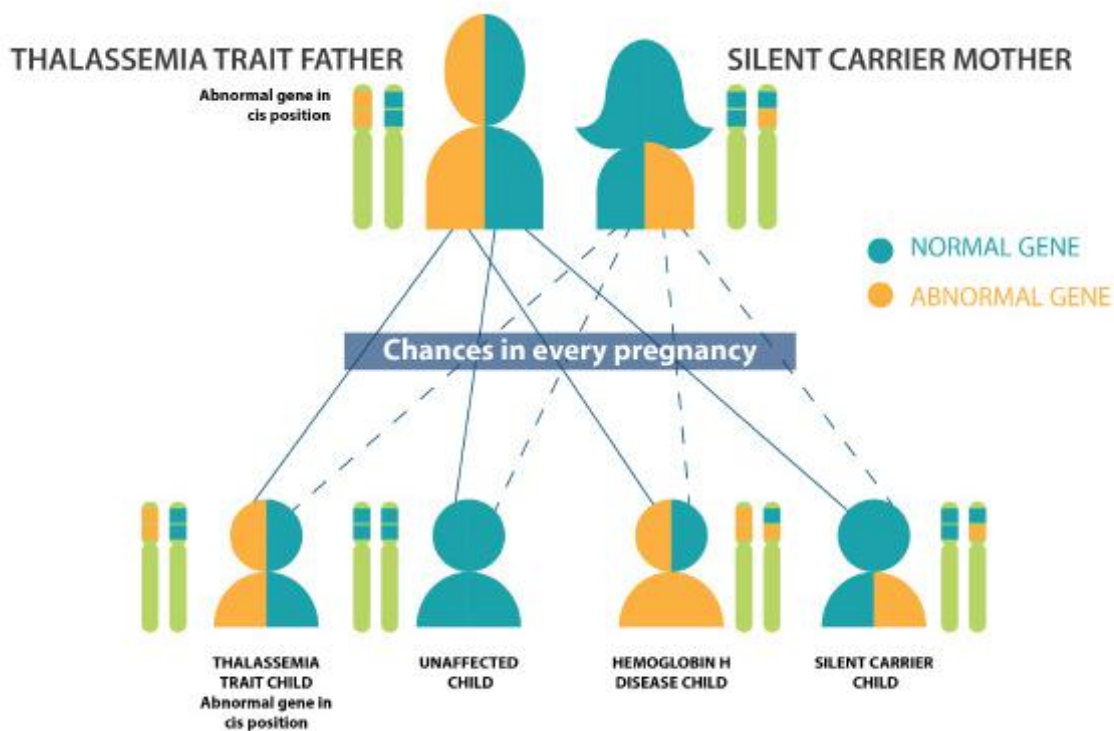
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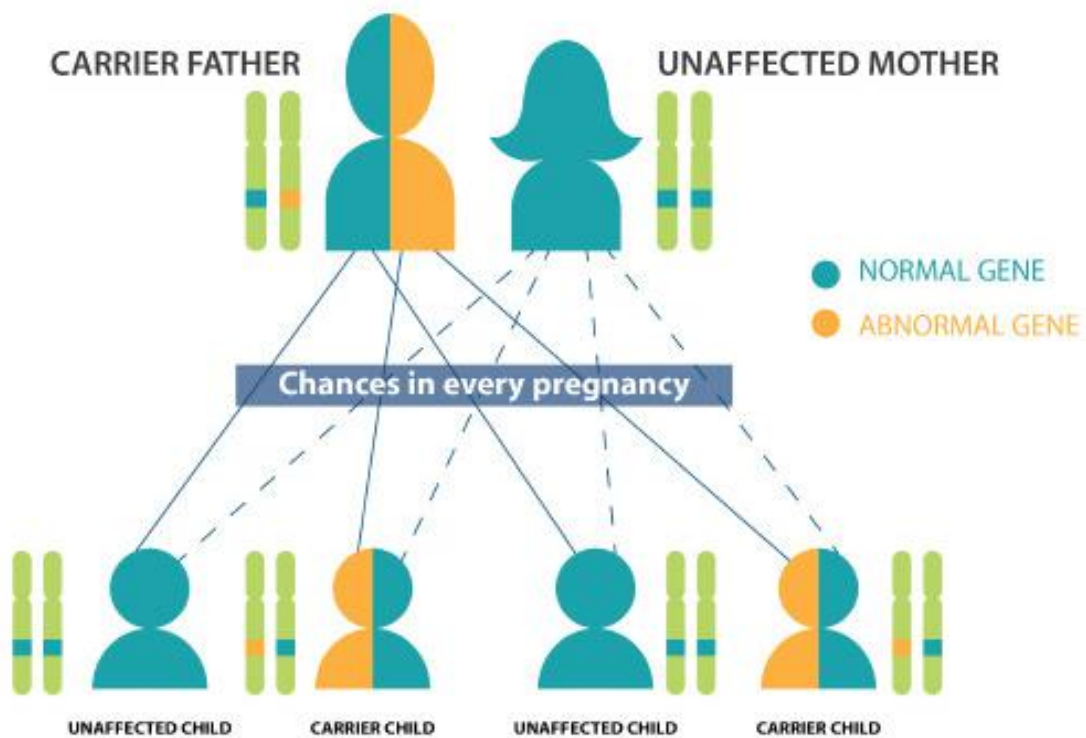
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1





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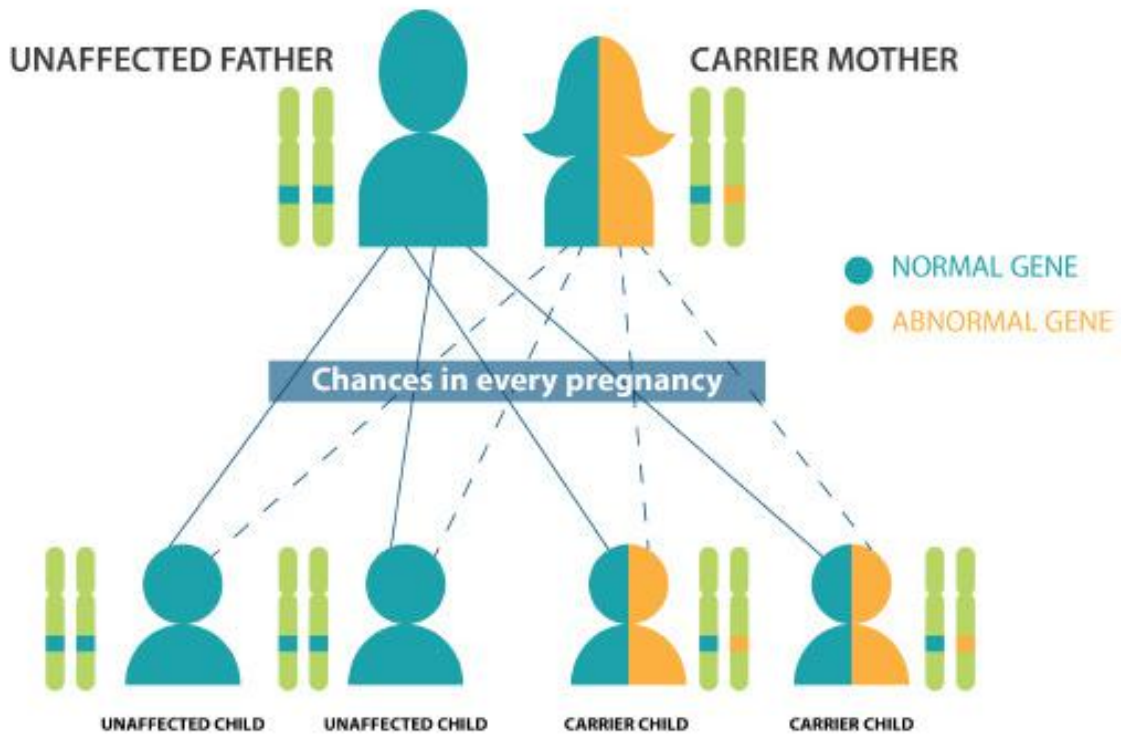
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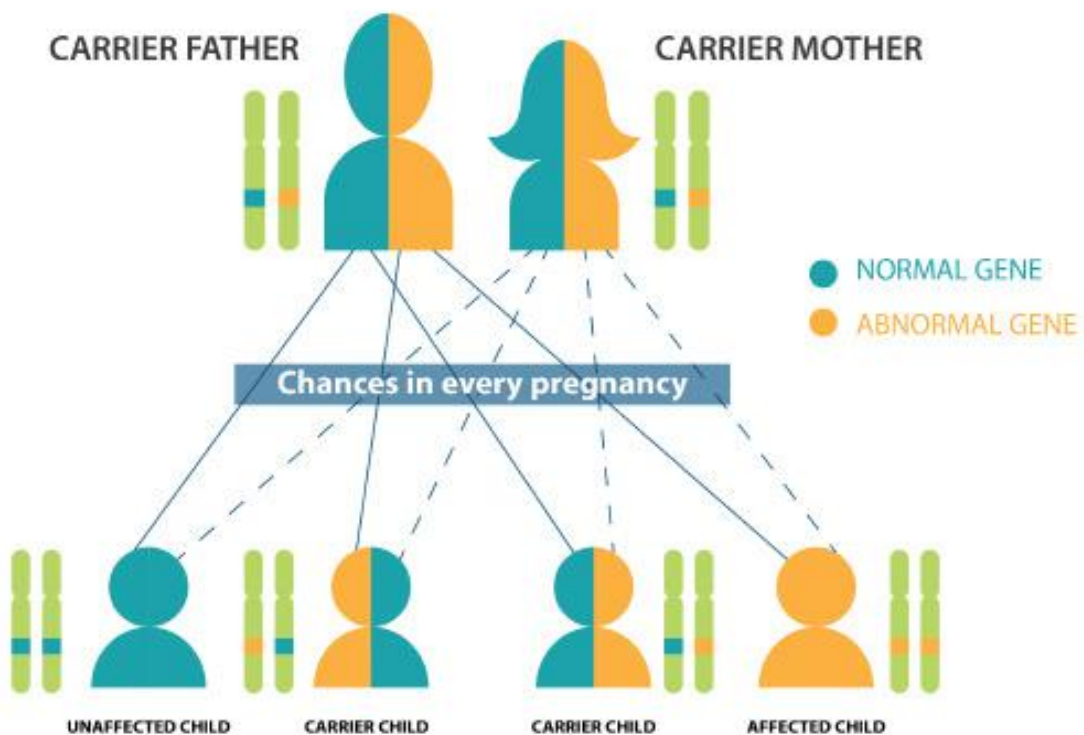
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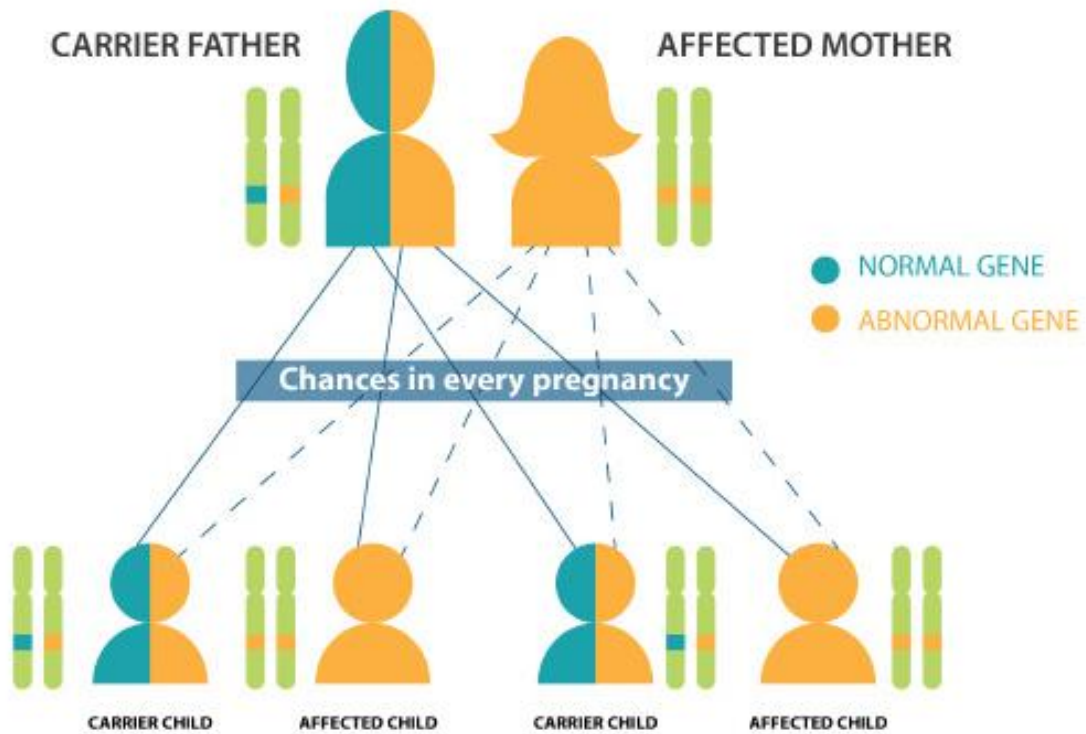
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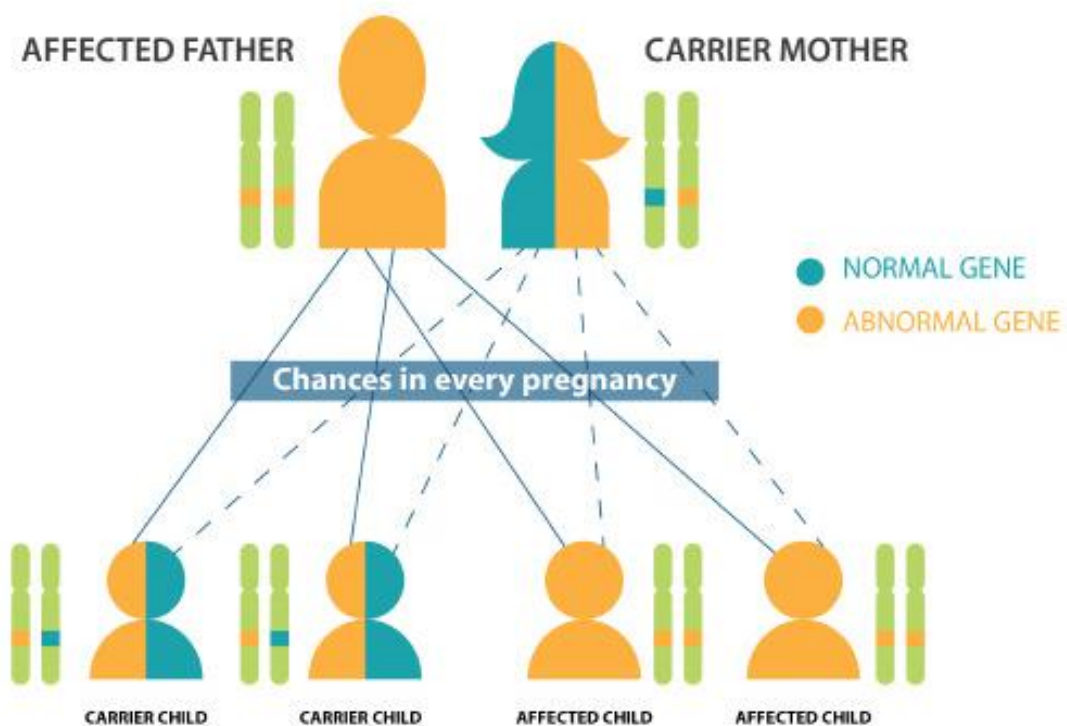
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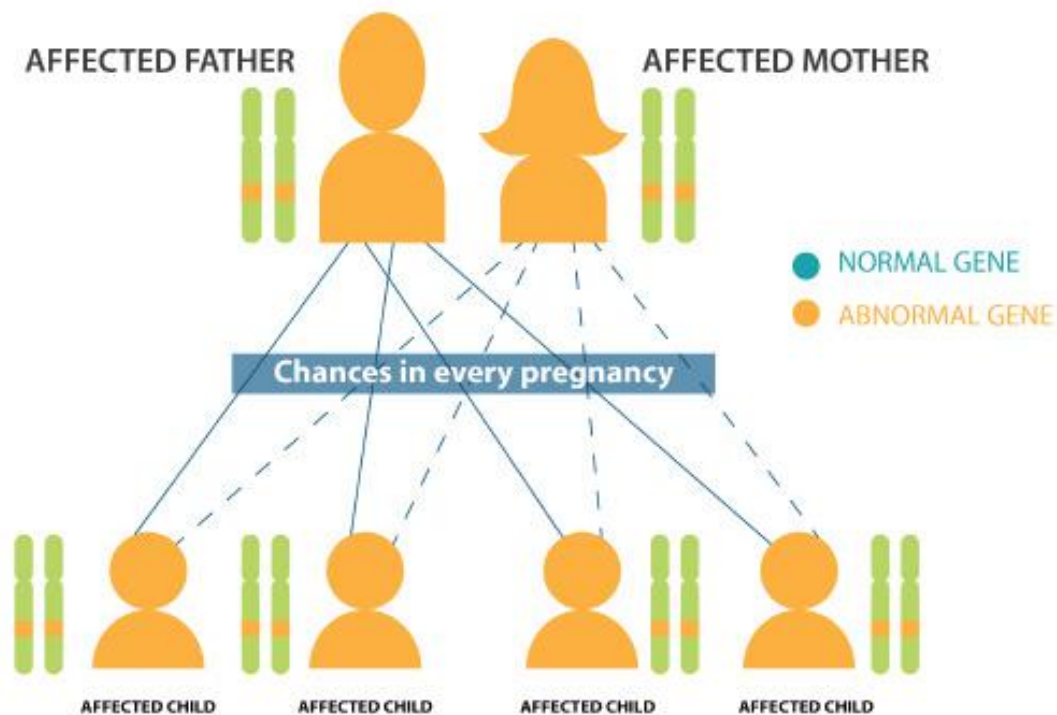
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Who should be tested for beta thalassemia?

- Some communities like Kutchi, Lohana, Sindhi, Punjabi, Bhanushali, Sikh, Bengali, Agri, etc. have a very high rate of thalassemia. They must get themselves checked.
- A pregnant woman must be tested as thalassemia may occur in people other than the above communities.
- A person with low Hb (thalassemia minor may occur with normal Hb also).

How is alpha thalassemia diagnosed?

A complete blood count and special blood tests for alpha thalassemia are now available to diagnose the condition. Now molecular and genetic tests are available that can diagnose the condition even before birth.

How is beta thalassemia minor diagnosed?

A complete blood count and special blood tests like hemoglobin electrophoresis help diagnose thalassemia minor. Now molecular and genetic tests are available that can diagnose the condition even before birth.

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