

# Sickle cell disease

## What is sickle cell disease?

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Sickle cell disease is a blood disorder affecting haemoglobin production. Haemoglobin is a protein in the blood that carries oxygen around our bodies.

Sickle cell disease is passed from parent to child in genes. Genes carry information about human characteristics such as eye colour, hair colour and haemoglobin.

**Sickle cell disease is inherited.**

**Sickle cell disease is not contagious.**

**Sickle cell disease is not transmitted by germs.**

Sometimes changes occur to genes, resulting in medical conditions. Such changes occur to beta ( $\beta$ ) globin genes in sickle cell disease:

- A person normally inherits two  $\beta$  globin genes for the production of the beta globin protein in haemoglobin.
- A person may have an alteration (mutation) in one of their two  $\beta$  globin genes. This person is called a sickle cell carrier and is healthy.
- Carriers may be at risk of having a child affected with sickle cell disease if their partner is also a sickle cell carrier.
- When a person has the sickle alteration (mutation) in one of their  $\beta$  globin genes, and they have a certain alteration in their other  $\beta$  globin gene they may have a condition called sickle cell disease.

## Treatment

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Those with sickle cell disease require regular medical management to prevent and manage short and long term complications.

## The health of sickle cell carriers

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A carrier can expect to be healthy. It is important that their doctor knows they are a carrier to distinguish any anaemia from anaemia caused by low iron levels.

## Beta thalassaemia and family planning

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The genes for sickle cell disease are common in people of African, Middle Eastern, Southern European, Indian, Pakistani and Caribbean origin.

Couples planning a family, or early in pregnancy, should have a blood test to determine whether or not they are carriers, if the origin of either of their families is one of the areas listed above; or if they have a family history of any blood disorder or anaemia. This test is needed to determine if there is any risk of having a child affected by a genetic blood disorder.

Those at risk of having an affected child have options. These conditions can be diagnosed as early as the 12th week of pregnancy. Termination of pregnancy can then be considered, if appropriate. People can adopt or can consider assisted reproductive techniques (such as preimplantation genetic diagnosis, the use of donor eggs or donor sperm). Others may choose to take the chance of having an affected child. All of these options can be discussed with a Genetic Counsellor.

Testing can be arranged by your local doctor or by contacting the hospitals listed at the end of this pamphlet.

## Important information for your family

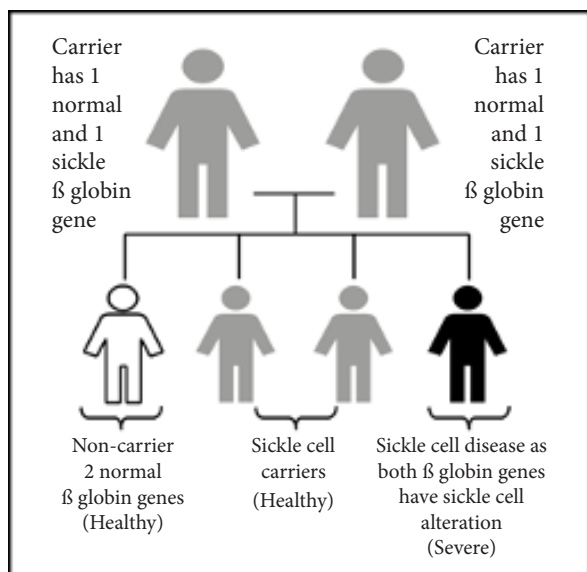
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If you are a carrier of HbS gene (sickle alteration), other members of your family may also be carriers and at risk of having children with a severe blood condition. It is recommended that other family members **and** their partners be tested for their carrier status **prior** to having children of their own.

## Chances of having a child affected with sickle cell disease

**Figure 1:**

Both parents are carriers of  $\beta$  thalassaemia

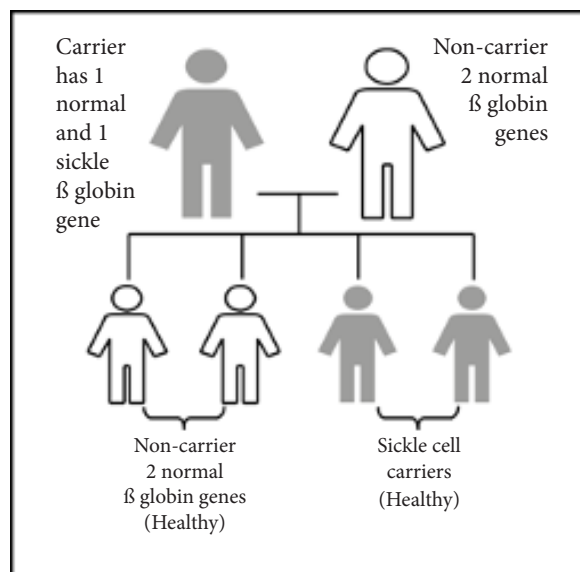


With **each** pregnancy, this couple has a:

- 1 in 4 chance of having a child with 2 normal  $\beta$  globin genes.
- 2 in 4 chance of having a sickle cell carrier.
- 1 in 4 chance of sickle cell disease.

**Figure 2:**

Only one parent is a sickle cell carrier



With **each** pregnancy, this couple has a:

- 2 in 4 chance of having a child with 2 normal  $\beta$  globin genes.
- 2 in 4 chance of having a sickle cell carrier.

### Useful contacts

#### Mater Adult Hospital

Mater Cancer Care Centre  
Level 2, Duncombe Building, Raymond Terrace,  
South Brisbane, QLD, 4101  
Phone: +61 7 3163 5200

#### Queensland Children's Hospital

501 Stanley St, South Brisbane, 4101  
Phone: +61 7 3068 1111 (Hospital Switchboard)  
Phone: +61 7 3068 2389 (Haematology)  
Email: LCCH-Haematology@health.qld.gov.au



**Thalassaemia and  
Sickle Cell Australia**  
*Unifying Support with Genetics*

Thalassaemia and Sickle Cell Australia  
Moorleigh Community Village  
92-94 Bignell Road  
Bentleigh East  
VIC, 3165, Australia

Phone : +61 3 7015 5637  
Email: info@tasca.org.au  
Mail to: P.O. Box 3076  
Moorabbin East  
VIC, 3189, Australia