

# Sickle Cell Disease

Sickle cell disease (SCD) is an inherited red blood cell disorder.

Normal blood cells are round like doughnuts and flexible. They squeeze through small blood vessels to deliver oxygen to the body's tissues. People with sickle cell disease have red blood cells that contain an abnormal type of hemoglobin (protein in red blood cells that carries oxygen). The disease causes sickled hemoglobin to stick together and form long rods in the red cell when it gives away oxygen. These rigid rods can change the red cell from round and flexible to a shape like a sickle (farm tool used to cut wheat). The abnormal hemoglobin causes blood cells to be unable to carry oxygen to the brain, and blood vessels leading to the brain may narrow or close.

## Affects of SCD

Symptoms vary according to the gene inherited from one or both parents. Sickle cell disease can cause anemia, jaundice, and the formation of gallstones. The sickle cells also block blood flow through vessels causing lung tissue damage, damage to organs, pain, and stroke.



## Diagnosis of SCD

Usually, sickle cell disease is diagnosed at birth with a blood test. Because kids with sickle cell disease are at an increased risk of infection and other health complications, effective management of the disease is important.

## Who is Affected?

Sickle cell disease is the most common inherited disease among African Americans. In the United States, sickle cell anemia affects about 72,000 people — most of whom are African Americans. The disease occurs in about:

- One in every 600 African-American births
- One in every 1,000–1,400 Hispanic-American births

As the parents of a child with SCD, you may know that it can lead to pain, anemia, serious infections and damage to major organs. But you may not know that nearly 11 percent of children born with the most severe form of sickle cell disease will have a stroke by age 20.

## How does SCD relate to stroke?

Sickle cell disease causes blood cells to stick to and damage the inner wall of blood vessels as well as clog the flow of blood. A stroke can be caused when blood is cut off to part of the brain.

Children with SCD are 200 to 400 times more likely to suffer a stroke compared to children without SCD. The Cooperative Study of Sickle Cell Disease showed that stroke is a constant threat after 2 years old, but the incidence is highest in the middle of a child's first 10 years of life.

## SCD and Treatment

Up to two-thirds of children with sickle cell disease and stroke will have more strokes unless they are treated.

Blood transfusions (receive donated blood) can help prevent stroke and other complications of SCD by replacing the sickled red blood cells in your child's body with normal donor cells. But there are drawbacks. Talk to your doctor about the risks and benefits for your child.

Your doctor may prescribe medicines to manage the pain and prevent infection.

## For More Information

Talk to your doctor or other healthcare professionals. Learn all you can about managing your child's sickle cell disease and find out your child's risk for stroke. Share this information with everyone in your child's network to get help quickly in an emergency.

You can also find more information on SCD and stroke by visiting [www.empoweredtoserve.org](http://www.empoweredtoserve.org).