SICKLE CELL DISEASE IS THE MOST COMMON INHERITED BLOOD DISORDER IN THE U.S.

Source: https://ghr.nlm.nih.gov/condition/sickle-cell-disease

INHERITING SICKLE CELL DISEASE

1 Out of 13 Black or African American babies are born with SCT

People who inherit one sickle cell gene and one normal gene have sickle cell trait (SCT). People with SCT do not have sickle cell disease (SCD), but they can pass the trait on to their children.

Father with Sickle Cell Trait

Mother with Sickle Cell Trait

25% chance

Unaffected

50% chance

Sickle Cell Trait

25% chance

Sickle Cell Disease

Sources:
https://www.cdc.gov/ncbddd/sicklecell/traits.html
https://www.cdc.gov/ncbddd/sicklecell/data.html

✚ It is estimated that

100,000 Americans are affected by SCD.

✚ SCD affects:

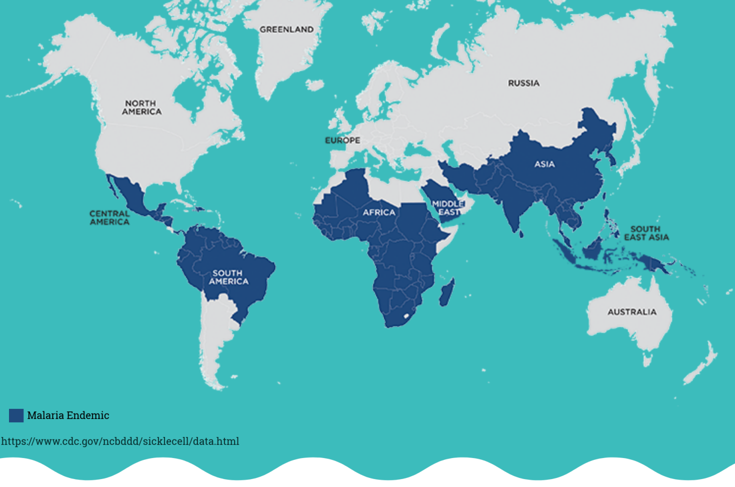
1 out of 365 Black or African American births

✚

1 out of 16,300 Hispanic-American births

✚

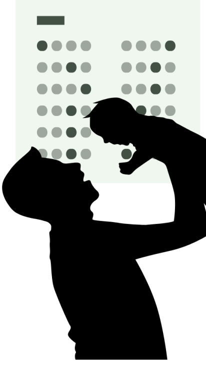
Sickle cell disease occurs more often among people from parts of the world where malaria is or was common. It is believed that people who carry the sickle cell trait are less likely to have severe forms of malaria.



Source: https://www.cdc.gov/ncbddd/sicklecell/data.html

DIAGNOSTIC TEST

People who are planning to become parents should know if they are carriers of the sickle cell gene. If they are, they may want to seek genetic counseling. A genetic counselor can explain to prospective parents about their chances of having a child with sickle cell trait or sickle cell disease. Accurate tests and information about genetic counseling may be available from health departments, neighborhood health centers, medical centers and clinics that care for individuals with sickle cell disease.



Source: http://www.ascaa.org/faq.php

SIGNS & SYMPTOMS

People living with SCD experience recurrent and severe acute pain episodes. They often experience chronic pain as well, limiting their ability to complete school and maintain employment.

Signs and symptoms of sickle cell disease can be mild or become severe enough to require frequent hospitalizations.

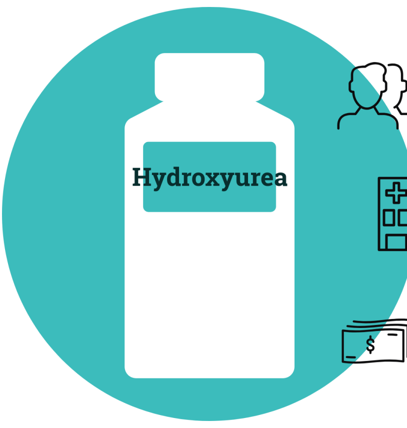
SYMPTOMS MAY INCLUDE:

- **ANEMIA** (low hemoglobin, resulting in looking pale skin)
- **DARK URINE**
- **YELLOW EYES**
- **PAINFUL SWELLING OF HANDS AND FEET**
- **FREQUENT PAIN EPISODES**
- **INHIBITED GROWTH**
- **STROKE**

Sources:
http://www.hematology.org/Patients/Anemia/Sickle-Cell.aspx
https://report.nih.gov/NIHfactsheets/ViewFactSheet.aspx?csid=116

TREATMENTS

Hydroxyurea became the first drug approved by the U.S. Food and Drug Administration for prevention of painful sickle cell episodes.



- Increases life expectancy
- Reduces emergency department visits and hospitalizations
- Cost effective even for gravely ill adult patients

While there is a cure (bone marrow transplant) available for individuals with sickle cell disease, it is not widely available or universal for everyone. Alternatives are being investigated, such as gene therapy.

In sickle cell disease, the gene which switches on production of adult hemoglobin shortly before birth is defective. **Two approaches** to gene therapy are being explored.

Some scientists are looking into whether correcting this gene and inserting it into the bone marrow of people with sickle cell disease will result in the production of normal adult hemoglobin.

Others are looking at the possibility of turning off the defective gene and simultaneously reactivating another gene that turns on production of fetal hemoglobin.

In both cases, the research is at a very early stage. Progress is being made, however, and there is a real possibility of an eventual universal cure for everyone with sickle cell disease.

Sources:
https://report.nih.gov/NIHfactsheets/ViewFactSheet.aspx?csid=116
http://www.ascaa.org/faq.php