Fact Sheet
Sickle Cell Trait
and
Sickle Cell Anemia

1. Sickle cell trait and sickle cell anemia are caused by abnormal hemoglobin. Hemoglobin is the protein in red blood cells, which carries oxygen from the lungs to other parts of the body.

2. Each of us inherits two genes for hemoglobin, one from each parent. Most persons inherit two normal genes and have only hemoglobin A (normal adult hemoglobin) in their red blood cells.

3. Persons with sickle cell trait inherit one normal gene and one sickle gene and have both normal hemoglobin A and abnormal hemoglobin S (sickle hemoglobin) in their red blood cells. The sickle trait occurs most commonly in persons with ancestors from Africa, Italy, Greece, Turkey, Arabia, India, the Caribbean Islands, and South and Central America. Sickle cell trait is a genetic characteristic; it is not a disease and does not develop into sickle cell anemia.

4. Sickle cell anemia is a serious disease. Persons with sickle cell anemia inherit a sickle cell gene from each parent and have only hemoglobin S in their red blood cells. The most common health problems are anemia, jaundice (yellowish appearance to the eyes), serious infections, tiredness, pain crisis, leg ulcers (sores), gallstones, strokes, eye problems, delayed growth and development and when older, lung and kidney trouble. The red blood cells of persons with sickle cell anemia are called sickle cells because they resemble a quarter moon or an old-fashioned hand sickle. Sickle cells can clog small blood vessels and thus cause many of the health problems noted above.
5. People with sickle cell anemia can have families, work, and lead productive lives. Some people experience more problems than others. Sickle cell anemia is not infectious or contagious.

**THE GENETICS OF SICKLE CELL**

- **AA** = normal
- **AS** = sickle cell trait
- **SS** = sickle cell anemia

- If one parent has sickle cell trait there is a 50% chance with each pregnancy of having a child with sickle cell trait.

- If both parents have sickle cell trait there is a 25% chance with each pregnancy of having a child with sickle cell disease.

All newborns in Colorado are routinely tested for sickle cell trait and sickle cell anemia as part of the Newborn Screening Program of the Colorado Department of Health. Testing of older persons involves simple blood tests. Your doctor can perform a hemoglobin electrophoresis and a CBC (complete blood count).

**For further information call:**
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