

Name: \_\_\_\_\_

### Pre-Survey

1) How would you rate your knowledge of asthma?

5                      4                      3                      2                      1  
Expert                      Some knowledge                      Never heard of it

2) I know someone with asthma.

Yes                      No

3) How would you rate your knowledge of diabetes?

5                      4                      3                      2                      1  
Expert                      Some knowledge                      Never heard of it

4) I know someone with diabetes.

Yes                      No

5) How would you rate your knowledge of sickle cell disease?

5                      4                      3                      2                      1  
Expert                      Some knowledge                      Never heard of it

6) I know someone with sickle cell disease.

Yes                      No

What's this Disease?

## Diagnostic Report

**Patient: Carmichael, Sally**

**Patient #: 2156**

**DOB: 03/15/1998**

**Sex: Female**

Ms. Carmichael presented with general malaise including moderate tiredness. Please review her case and determine a diagnosis.

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What do I need to know?

Diagnosis Hypothesis: \_\_\_\_\_

\_\_\_\_\_

Symptom #2 \_\_\_\_\_

What do I need to know?

Diagnosis Hypothesis: \_\_\_\_\_

\_\_\_\_\_

Symptom #3 \_\_\_\_\_

What do I need to know?

Final Diagnosis: \_\_\_\_\_

\_\_\_\_\_

# Asthma

Asthma is an inflammatory disorder of the airways, which causes attacks of wheezing, shortness of breath, chest tightness, and coughing [1].

## What causes Asthma?

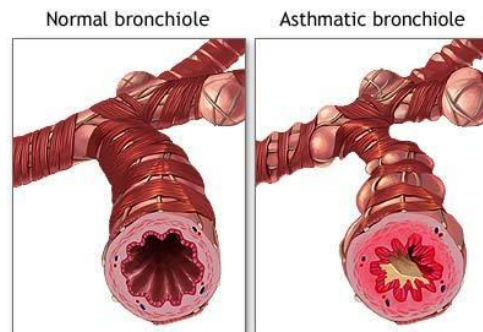
Asthma is caused by inflammation in the airways. When an asthma attack occurs, the muscles surrounding the airways become tight and the lining of the air passages swells. This reduces the amount of air that can pass by. In sensitive people, asthma symptoms can be triggered by breathing in allergy-causing substances (called allergens or triggers) such as animal dander, mold, stress, or tobacco smoke [1].

## Symptoms include [1]:

- Cough with or without sputum (phlegm) production
- Pulling in of the skin between the ribs when breathing (*intercostal retractions*)
- Shortness of breath that gets worse with exercise or activity
- Wheezing, which:
  - Comes in episodes with symptom-free periods in between
  - May be worse at night or in early morning
  - May go away on its own
  - Gets better when using drugs that open the airways (bronchodilators)
  - Gets worse when breathing in cold air
  - Gets worse with exercise
  - Gets worse with heartburn (reflux)
  - Usually begins suddenly

## Warning Signs [2]:

- Frequent cough, especially at night
- Losing your breath easily or shortness of breath
- Feeling very tired or weak when exercising
- Wheezing or coughing after exercise
- Feeling tired, easily upset, grouchy, or moody
- Decreases or changes in lung function as measured on a peak flow meter
- Signs of a cold or allergies (sneezing, runny nose, cough, nasal congestion, sore throat, and headache)
- Trouble sleeping



ADAM.

## Treatment [1]:

The goal of treatment is to avoid the substances that trigger your symptoms and control airway inflammation. Two basic kinds of medication used for treating asthma are control drugs (to prevent attacks) and quick relief drugs (for use during attacks).

1. Asthma. A.D.A.M. :Retrieved 6/1/11 from <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001196/>
2. WebMD. (n.d.). *Asthma symptoms*. Retrieved May 5, 2011, from <http://www.webmd.com/asthma/guide/asthma-symptoms>

# Diabetes

Diabetes is a chronic disease marked by high levels of blood sugar.

## What causes Diabetes?

Insulin is a hormone produced by the pancreas to control blood sugar. Diabetes can be caused by too little insulin, resistance to insulin, or both [1]. There are two types of diabetes. Type 1 is usually diagnosed in childhood. In this disease, the body makes little or no insulin. Daily injections of insulin are needed. The exact cause is unknown. Genetics, viruses, and autoimmune problems may play a role. Type 2 is far more common than type 1. It makes up most of diabetes cases. It usually occurs in adulthood, but young people are increasingly being diagnosed with this disease. The pancreas does not make enough insulin to keep blood glucose levels normal, often because the body does not respond well to insulin. Many people with type 2 diabetes do not know they have it, although it is a serious condition [1]. Some Risk factors for developing type 2 diabetes deal with blood pressure, blood fat levels, high fat diets, alcohol intake, lifestyles, and obesity [2].

## Symptoms include [2]:

- being very thirsty
- frequent urination
- weight loss
- increased hunger
- blurry vision
- irritability
- tingling or numbness in the hands or feet
- frequent skin, bladder or gum infections
- wounds that don't heal
- extreme unexplained fatigue

## Treatment [1]:

There is no cure for diabetes. Treatment involves medicines, diet, and exercise to control blood sugar and prevent symptoms [1].

1. Diabetes. A.D.A.M. Retrieved on 6/1/11 from <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002194/>
2. Joslin Diabetes Center. (n.d.). *General diabetes facts and information*. Retrieved May 5, 2011, from [http://www.joslin.org/info/general\\_diabetes\\_facts\\_and\\_information.html?gclid=CMDBwf6V0agCFYT\\_r7QodwA\\_diQ](http://www.joslin.org/info/general_diabetes_facts_and_information.html?gclid=CMDBwf6V0agCFYT_r7QodwA_diQ)

# Sickle Cell Disease

Sickle cell disease (or anemia) is a disease passed down through families in which red blood cells form an abnormal crescent shape. (Red blood cells are normally shaped like a disc.) [1]

## What causes Sickle Cell Disease?

Hemoglobin is a protein inside red blood cells that carries oxygen. Sickle cell anemia is caused by an abnormal type of hemoglobin called hemoglobin S. Hemoglobin S distorts the shape of red blood cells, especially when exposed to low oxygen levels. The distorted red blood cells are shaped like crescents or sickles. These fragile, sickle-shaped cells deliver less oxygen to the body's tissues. They can also clog more easily in small blood vessels, and break into pieces that disrupt healthy blood flow [1].

## Symptoms include [1,2]:

- Fatigue
- Shortness of breath
- Dizziness
- Headaches
- Attacks of abdominal pain
- Fever
- Rapid heart rate
- Pain
- Coldness in the hands and feet
- Paler than normal skin or mucous membranes (the tissue that lines your nose, mouth, and other organs and body cavities)
- Jaundice (a yellowish color of the skin or whites of the eyes)
- Problems with eyes



## Treatment [1]:

Patients with sickle cell disease need ongoing treatment, even when they are not having a painful crisis. They should take supplements of folic acid (essential for producing red blood cells) because red blood cells are turned over so quickly. The purpose of treatment is to manage and control symptoms, and to limit the frequency of crises. Blood transfusions are used to treat a sickle cell crisis. They may also be used on a regular basis to help prevent strokes. Bone marrow or stem cell transplants can cure sickle cell anemia. However, they are currently not an option for most patients.

1. Sickle Cell Anemia. A.D.A.M. :Retrieved 6/1/11 from <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001554/>
2. National Heart Lung and Blood Institute. (n.d.). *Signs of anemia, symptoms of anemia*. Retrieved May 5, 2011, from [http://www.nhlbi.nih.gov/health/dci/Diseases/anemia/anemia\\_signsandysymptoms.html](http://www.nhlbi.nih.gov/health/dci/Diseases/anemia/anemia_signsandysymptoms.html)

What's this Disease?

LabCorp

**Patient: Carmichael, Sally**

**Patient #: 2156**

**DOB: 03/15/1998**

**Sex: Female**

Blood Results



## Fact or Myth

Fact/Myth

1. Sickle Cell Disease has no cure. \_\_\_\_\_
2. Sickle Cell Disease is fatal. \_\_\_\_\_
3. Indians, Arabs, Greeks, and Turks can have the trait or disease. \_\_\_\_\_
4. Sickle Cell Disease is only found in African American children. \_\_\_\_\_
5. 1 in 12 African Americans are affected in the US. \_\_\_\_\_
6. People are tested for Sickle Cell Disease when they are born. \_\_\_\_\_
7. People with Sickle Cell Disease cannot play sports, like football, basketball, or even track. \_\_\_\_\_
8. Some people with Sickle Cell Disease are in pain constantly. \_\_\_\_\_
9. Sickle Cell Disease can only be found in children. \_\_\_\_\_
10. If a person has the disease, their children will definitely have the disease as well. \_\_\_\_\_
11. People can grow out of Sickle Cell Disease. \_\_\_\_\_
12. Having the sickle cell trait means a person won't get sick at all. \_\_\_\_\_
13. Those with Sickle Cell Disease are immune to the flu, or common cold. \_\_\_\_\_
14. People with Sickle Cell Disease are contagious \_\_\_\_\_
15. Students with Sickle Cell Disease don't have to go to school \_\_\_\_\_
16. Children with Sickle Cell Disease have a harder time learning \_\_\_\_\_

What's this Disease?

Now that Sally has been diagnosed with Sickle Cell Disease, a genetic disease, she has been sent for genetic counseling.

**Determine the probability that Sally's children will inherit Sickle Cell Disease using Punnett Squares.**

XX: Does not have the disease and does not carry the trait (disease)

XY: Does not have the disease but carries the trait (carrier)

YY: Has the disease

Punnett Square	Mother		
	Traits		
Father			

In fraction form (ex.  $\frac{1}{4}$ ):

What is the chance a child will have Sickle Cell? \_\_\_\_\_

What is the chance a child will carry the Sickle Cell Trait? \_\_\_\_\_

What is the chance a child will not have Sickle Cell or the Trait? \_\_\_\_\_

Punnett Square	Mother		
	Traits		
Father			

In fraction form (ex.  $\frac{1}{4}$ ):

What is the chance a child will have Sickle Cell? \_\_\_\_\_

What is the chance a child will carry the Sickle Cell Trait? \_\_\_\_\_

What is the chance a child will not have Sickle Cell or the Trait? \_\_\_\_\_



What's this Disease?

<b>Punnett Square</b>		<b>Mother</b>	
	<b>Traits</b>		
<b>Father</b>			

In fraction form (ex.  $\frac{1}{4}$ ):

What is the chance a child will have Sickle Cell? \_\_\_\_\_

What is the chance a child will carry the Sickle Cell Trait? \_\_\_\_\_

What is the chance a child will not have Sickle Cell or the Trait? \_\_\_\_\_

What would be your advice to Sally?

<b>Punnett Square</b>		<b>Mother</b>	
	<b>Traits</b>		
<b>Father</b>			

Name: \_\_\_\_\_

### Sickle Cell Disease Quiz

- 1) \_\_\_ What is Sickle Cell Disease?
  - a. It is a recessive genetic disease of the blood
  - b. It is something you catch by holding someone's hand
  - c. It is a disease only found in African Americans.
  - d. It is a small bacteria that sickens the cells
  
- 2) \_\_\_ If the Mom has Sickle Cell Trait (XY), and the Dad has no sickle cell (XX), what is the probability that any of their children will have the disease (YY)?
  - a. 0%
  - b. 25%
  - c. 50%
  - d. 75%
  - e. 100%
  
- 3) \_\_\_ If the Mom has Sickle Cell Trait (XY), the Dad has sickle cell disease (YY), and the first child they have has the disease (YY), what is the probability that their second child will also have the disease?
  - a. 0%
  - b. 25%
  - c. 50%
  - d. 75%
  - e. 100%
  
- 4) List **two** new things you have learned about Sickle Cell today?
  
  
- 5) How would you rate your knowledge of Sickle Cell Disease?

5	4	3	2	1
Expert		Some knowledge		Never heard of it
  
- 6) What was your favorite activity and why?
  
  
- 7) What was your least favorite activity and why?