

Hemophilia

Signs and Symptoms

- Unexplained and excessive bleeding from cuts or injuries, or after surgery or dental work
- Many large or deep bruises
- Unusual bleeding after vaccinations
- Pain, swelling or tightness in your joints
- Blood in your urine
- Nosebleeds without a known cause
- In infants, unexplained irritability

Signs and Symptoms from:

<https://www.mayoclinic.org/diseases-conditions/hemophilia/symptoms-causes/syc-20373327>

Chromosome That Carries Hemophilia

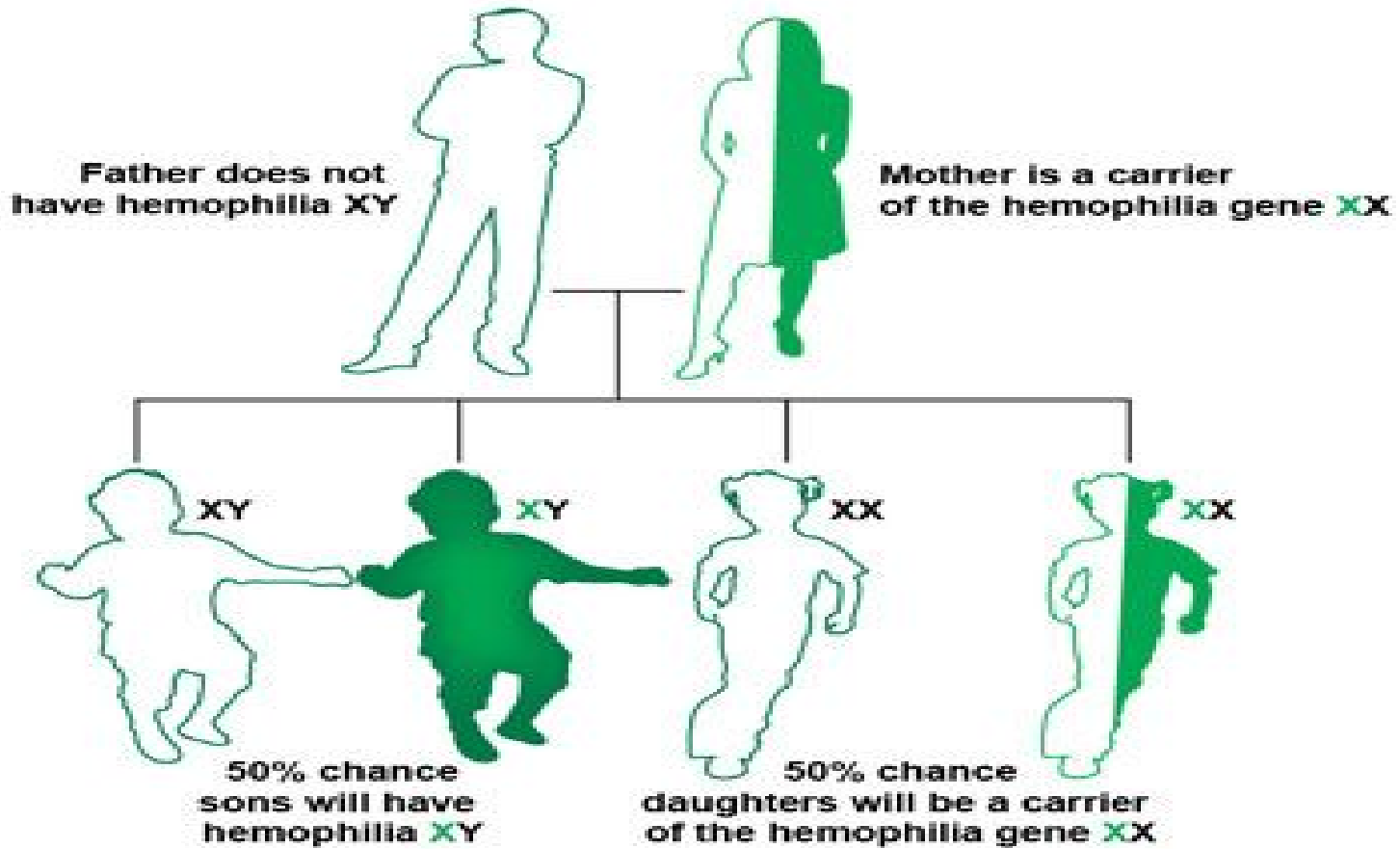
X Chromosome

From: <https://ghr.nlm.nih.gov/condition/hemophilia>

Facts

- There are three different types of hemophilia: Hemophilia A, B, and C.
- The type is determined by the clotting factor the person is deficient in.
- The more deficient in the clotting factor a person is, the more severe their hemophilia will be.
- There is no cure for hemophilia but with preventative treatment, people can live normal, healthy lives.
- The clotting factors involved are VIII for A, IX for B and XII for hemophilia C.
- People living with the hemophilia A and B need to have clotting factor IVs every couple of days.
- Hemophilia C is considered less serious than A and B, and bleeds tend to occur following surgical or dental procedures. People with hemophilia C do not need regular clotting factor IVs.
- Hemophilia A and B is carried on the X chromosome so affects boys more than girls, but females can be carriers of the disease.
- Hemophilia A is the most common type of the disease affecting one in 5,000 boys, hemophilia B affects one in 25,000 boys and hemophilia C just one in 100,000.
- It's estimated that there are around 20,000 people in the U.S. with the condition.
- Hemophilia C affects males and females equally.
- The disease is usually detected early in life, with severe cases usually diagnosed within a month and mild cases within the infant's first 18 months.
- Complications from hemophilia include joint pain, arthritis, heart disease, kidney disease and hemorrhaging – particularly cranial hemorrhaging.

Facts from: <https://hemophilianewstoday.com/2017/06/15/fast-facts-hemophilia/>

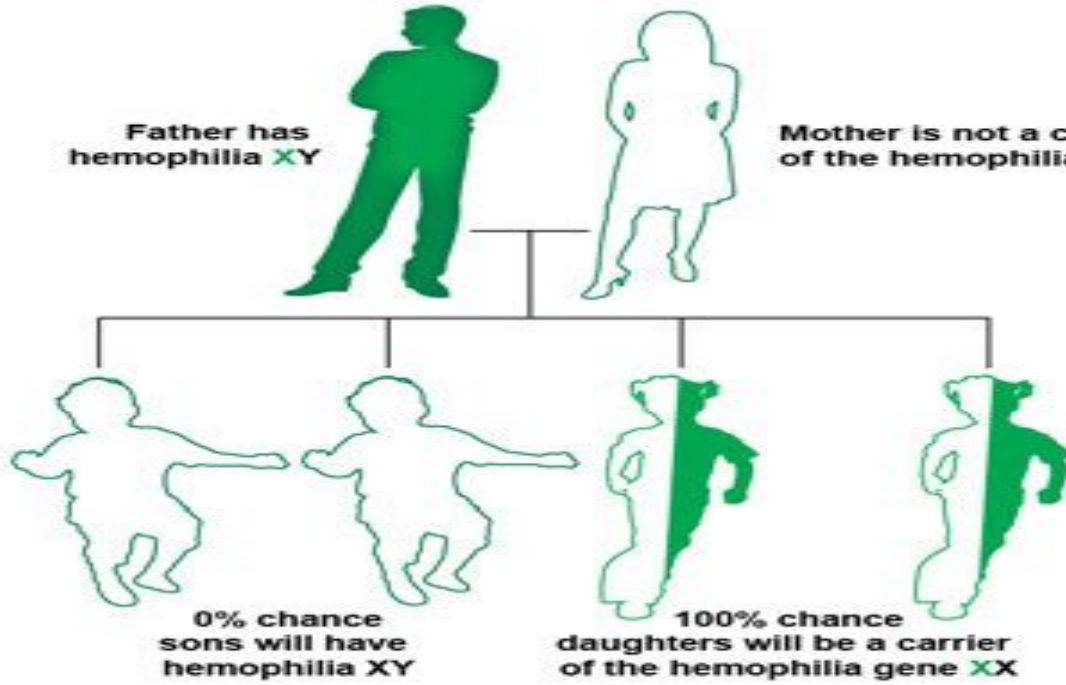


Key

	Does not have Hemophilia		Carrier of the Hemophilia gene		Has Hemophilia
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Father has hemophilia XY

Mother is not a carrier of the hemophilia gene XX



Key



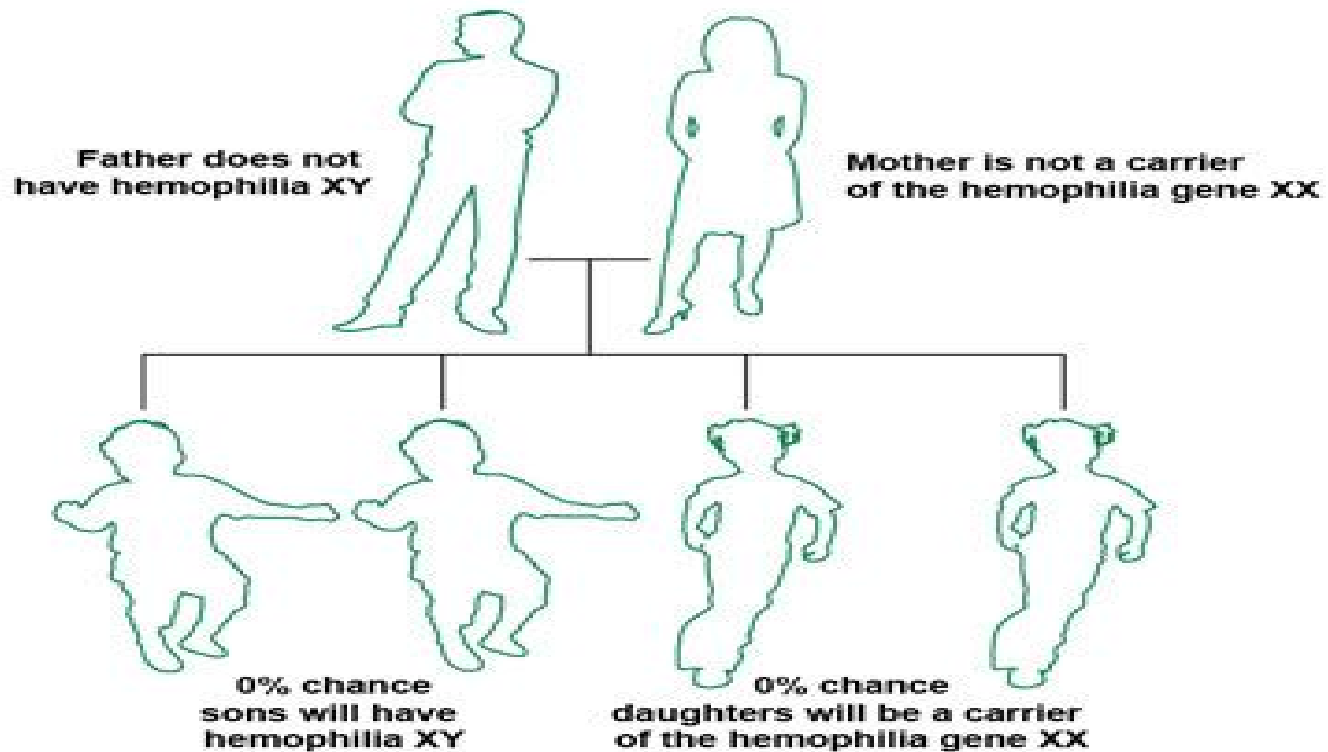
Does not have Hemophilia



Carrier of the Hemophilia gene



Has Hemophilia



Key



Does not have Hemophilia



Carrier of the Hemophilia gene



Has Hemophilia

Photos from: <https://www.cdc.gov/ncbddd/hemophilia/inheritance-pattern.html>

Complications

Complications of hemophilia may include:

- **Deep internal bleeding.** Bleeding that occurs in deep muscle can cause your limbs to swell. The swelling may press on nerves and lead to numbness or pain.
- **Damage to joints.** Internal bleeding may also put pressure on your joints, causing severe pain. Left untreated, frequent internal bleeding may cause arthritis or destruction of the joint.
- **Infection.** People with hemophilia are likelier to have blood transfusions, increasing their risk of receiving contaminated blood products. Blood products became safer after the mid-1980s due to screening of donated blood for hepatitis and HIV.
- **Adverse reaction to clotting factor treatment.** In some people with hemophilia, the immune system has a negative reaction to the clotting factors used to treat bleeding. When this happens, the immune system develops proteins (known as inhibitors) that inactivate the clotting factors, making treatment less effective.

Complications from:

<https://www.mayoclinic.org/diseases-conditions/hemophilia/symptoms-causes/syc-20373327>

Overview

Hemophilia is a rare disorder in which your blood doesn't clot normally because it lacks sufficient blood-clotting proteins (clotting factors). If you have hemophilia, you may bleed for a longer time after an injury than you would if your blood clotted normally.

Small cuts usually aren't much of a problem. The greater health concern is deep bleeding inside your body, especially in your knees, ankles and elbows. That internal bleeding can damage your organs and tissues, and may be life-threatening.

Overview from:

<https://www.mayoclinic.org/diseases-conditions/hemophilia/symptoms-causes/syc-2037332>

Works Cited

<https://www.mayoclinic.org/diseases-conditions/hemophilia/symptoms-causes/syc-203733>
27

<https://ghr.nlm.nih.gov/condition/hemophilia>

<https://www.cdc.gov/ncbddd/hemophilia/inheritance-pattern.html>

<https://hemophilianewstoday.com/2017/06/15/fast-facts-hemophilia/>

