

## Information for Patients

# X-linked Inheritance

### What is X-linked inheritance?

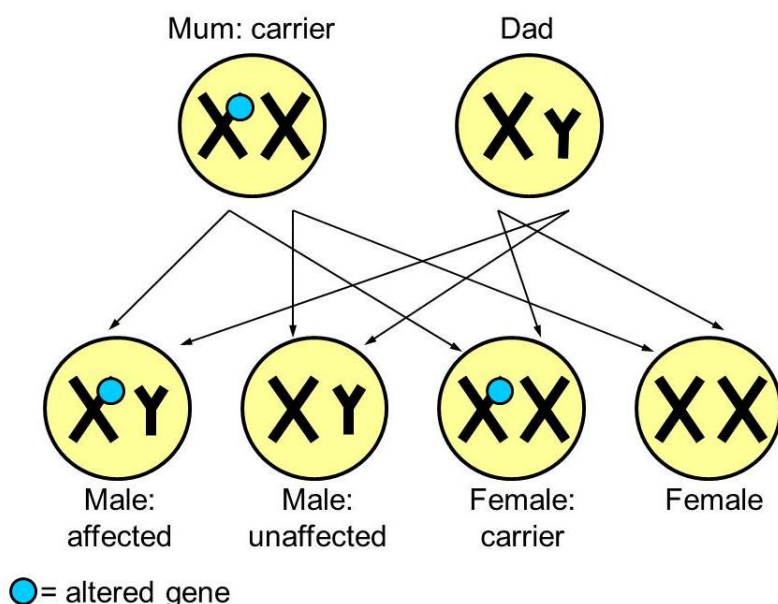
X-linked conditions are health problems caused by altered genes on the X chromosome.

Women and girls have two X chromosomes. If a girl or woman has an altered gene on one of her two X chromosomes, she will usually not be affected but will be a healthy carrier. This is because she has a second working copy of the gene on her other X chromosome.

Boys and men have one X chromosome and one Y chromosome. If a boy or man has an altered gene on his X chromosome, he will be affected by this because he doesn't have a second X chromosome with another copy of the gene.

### Having children

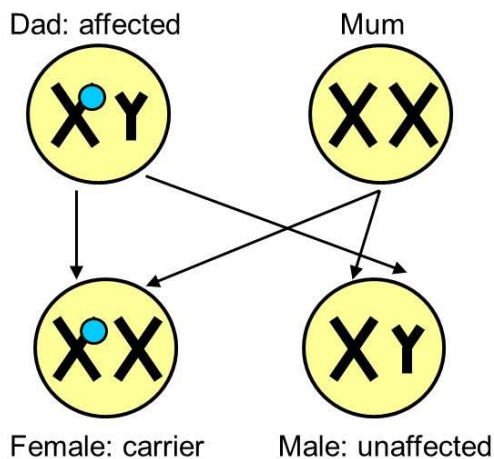
#### X-linked recessive inheritance (female carrier)



If a female carrier has a boy, there is a 50% (1 in 2) chance that the boy will be affected by a condition caused by the altered gene that she carries.

If the female carrier has a girl, there is a 50% (1 in 2) chance that the girl will inherit the altered gene. If this happens, she will be expected to be a healthy carrier, like her mother.

## X-linked recessive inheritance (affected male)



● = altered gene

When men who have X-linked conditions have children, all of their daughters inherit the altered gene on their X chromosome. These daughters will be expected to be healthy carriers.

Men do not pass on X chromosomes to their sons. Therefore, sons of men with X-linked conditions cannot inherit the condition from their fathers.

Sometimes boys are born with X-linked conditions even though their mothers are not carriers. When this happens, it is particularly important to get specialist advice about future pregnancies. You can ask your genetic counsellor or genetic doctor for more information about this.

## For more information

A separate information sheet called “Introduction to chromosomes” is available. If you need more advice about any aspect of X-linked inheritance, you are welcome to contact:

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