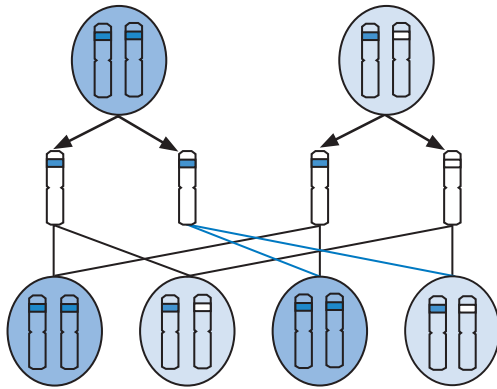
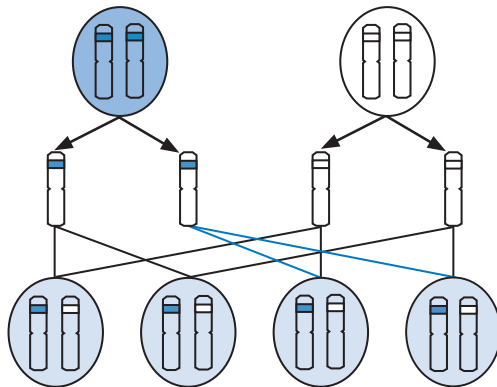


**Autosomal recessive inheritance:
one parent affected one parent carrier**



Affected Carrier Affected Carrier

**Autosomal recessive inheritance:
one parent is affected one parent
not a carrier**



Carriers Carriers

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Recessive Inheritance

An information leaflet for patients and families

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What is Recessive Inheritance?

What are genes?

Genes are the unique set of instructions in every cell which make each of us an individual. There are many thousands of genes, each carrying a different instruction. If a gene is altered, it can cause a genetic condition or disease. This gene alteration is known as a mutation.

We have two copies of each gene. One copy is inherited from our mother and one copy from our father. When we have children, we pass on only one copy of each of our genes.

What does recessive inheritance mean?

Some conditions are inherited in a way that is called recessive. Individuals who have two altered copies of a gene are affected with the condition. Individuals who have only one altered copy of a gene are usually completely healthy. They are known as carriers, because they carry one altered copy of a gene. Their normal copy of the gene keeps them healthy and compensates for the altered copy.

Having children

If both healthy parents carry the same altered recessive gene, then there are four possible outcomes for each pregnancy they have regardless of the sex of the child they have: (see diagrams)

- A 1 in 4 (25%) chance of inheriting the altered gene from both parents and being affected
- A 1 in 2 (50%) chance of inheriting the altered gene from one parent and therefore being a healthy carrier
- A 1 in 4 (25%) chance of inheriting the normal gene from both parents and being neither a carrier nor affected

If only one parent is a carrier of the altered gene, then each of their children has a 1 in 2 (50%) chance of being a healthy carrier, but will not be affected.

Couples who are closely related to each other (e.g. first cousins) are more likely to share a copy of the same altered gene thereby increasing the likelihood of having a child with a recessively inherited condition.

