Health Science Pathway

Data and Statistic Module, worked example 2 – probability

A couple find out that both are heterozygous (carriers) for the same cystic fibrosis gene. What is the probability that:

a) Their first child will have cystic fibrosis?

b) Their second child will have cystic fibrosis?

c) What is the probability that the couple's first child will be a boy and not have cystic fibrosis?

Answer:

a) ¼

b) ¼ the probability of the second child having cystic fibrosis is not influenced by the probability of the first child having cystic fibrosis

c) The probability of having a boy is ½ and the probability that this couple will have a child without cystic fibrosis is ¾. Therefore the probability of this couple having a boy who does not have cystic fibrosis is $\frac{1}{2}$ x $\frac{3}{4}$ = $\frac{3}{8}$