

Howard Hughes Medical Institute's Holiday Lectures on Science Learning from Patients: The Science of Medicine

Pedigree Analysis Activity Answer Key

Q1. D is the correct answer.

Q2. B is the correct answer.

Why? Because people affected by this disease are surviving at least to the age they are able to have children.

Q3. C is the correct answer.

Q4. D is the real answer, but there are other possibilities.

A: This is possible also. To investigate genetic vs. environmental causes, you need information from many families that share the same environment.

B: This is also possible. The severity of the disease and the age of disease onset need to be carefully examined.

C: It doesn't seem like this is a reasonable explanation for the disease, yet it is not entirely impossible. Again, a careful review of the life histories of patients is necessary.

Opinion Polls

Poll 1: A, B, and C are all possible beneficial effects of genetic testing. On the other hand, it is not a trivial issue to have a genetic test.

Poll 2: A and B seem the most logical, C the frivolous choices. D is probably a bad idea because her siblings' lives are at risk. But of course, sharing of genetic information has risks.

For a discussion on this manner, see Learning from Patients: The science of medicine DVD, Lecture 2, chapter 7, and the Bioethics discussion video on disc 2.

Q5. A is the correct answer.

Some of the other answers have elements of truth to them.

B is very unlikely but possible, but it is not a good explanatory answer.

C is also theoretically possible, but it is not necessary to invoke this possibility as the cause.

D cannot be ruled out. In pedigree analysis, it is always important to try to separate environmental causes from genetic ones.