



Classroom Scenario (Advanced): Genetic Testing

SCENARIO

This is a role-playing tool to stimulate learning and spark students' curiosity about the different aspects of genomics. It should promote discussion, rather than provide all the answers – which would be impossible anyway.

Your scenario

The scene takes place in an insurance company. A customer fills out a questionnaire for an insurance policy. He is undecided about one question:

“Are you willing to undergo genetic testing?” He wonders what is at stake here.

You set the scene

The teacher and students work together to develop the plot based on the scenario and decide on the tone (humorous, serious, tragic, etc.). This presentation can be used as a springboard for classroom discussion. You can also make use of the questions and scientific facts on this page.

Thought-Provoking Questions

- What are the advantages of genetic testing? (Find better cures; prevention; act with full knowledge of the facts, e.g. in the case of genetic testing for lactic acidosis; alleviate fears of transmitting a genetic disease; lower healthcare costs)
- Is your privacy at risk? If you carry the gene for a genetic disease, who do you feel should have access to your medical file? (You alone and your family, your employer, your doctor, your insurance company, etc.)
- Do you think that either refusing to undergo genetic testing or having a positive result of such a test could lead to discrimination? (Possibility of the incorrect use or abuse of genetic information; risk of discrimination; exclusion from society)
- If genetic testing was available for a person's pre-disposition to lung cancer, would you want to take it?
- Can you think of a disease that you would not want to know about, even if genetic testing were available? (Psychological effects if no treatment is available, e.g. Alzheimer's; proper counselling prior to testing)
- Does society benefit from the circulation of private information? (Scientific and medical advances; medico-legal purposes, e.g. DNA banks for helping to solve crimes)

Scientific Facts

Advances in genetics, particularly in deciphering the human genome, have better enabled us to determine the risks of developing an illness. Genetic pre-disposition testing can be done for breast cancer, ovarian cancer and colon cancer. Many other types of genetic testing will be available in a few years.

Knowing about a genetic predisposition can motivate people to take preventive measures in terms of nutritional habits, physical activity, environmental conditions, medical supervision, etc.

Cancer is a disease often caused or triggered by external factors such as chemical substances (in tobacco, food, etc.) and radiation, or indirectly by viruses. Only 5% of cancer is hereditary, i.e. passed down from the parents at birth.

Genetic testing can be divided into two main categories. Some tests are used to detect a genetic defect in an individual's genome, while others perform genetic fingerprinting (DNA identification).

With the exception of identical twins, all human beings have a small number of their own DNA sequences (0.1%). This genetic difference can be used to determine their genetic imprint, much like our fingerprints.

For more information on genomics, check out our partners' sites:

Genome Canada
www.genomecanada.ca

Canadian Institutes of Health Research
www.cihr-irsc.gc.ca

VISIT nature.ca/genome

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