

**Make a Decision: Scenario**

As an undergraduate biology student, you have a work-study position doing various jobs in the biology department. While organizing some paperwork for one of your professors, Dr. Amir Essa, you come across three completed application forms dated from the previous year. When you ask him about them, he comes over to look.

“These are applications for biomedical research grants submitted to a Canadian foundation that funds kidney research,” says Dr. Essa. “Each year they provide funding for medical research projects related to kidney disease, a disease in which kidney function decreases, often leading to kidney failure. Last year, I volunteered to review applications. Each application goes through an extensive peer review by medical professionals and scientists.”

“How do you decide which projects to fund?” you ask.

“It can be a challenge,” Dr. Essa says as he pages through the applications. “The scientific rigour of each project is considered, as well as its relevance to the foundation’s mission of funding research that could lead to improved treatment or a cure for kidney disease. These three applications are all scientifically excellent. One outlines research to improve dialysis technology. Another deals with development of implanted bioartificial kidneys, which have both artificial and cellular components. The last one looks at reducing patient rejection of human kidney transplants.”

“Which project got funded?” you ask, curiously looking over his shoulder.

Dr. Essa smiles, noticing your interest. “I know a better question for a third-year biology student considering graduate studies. Which would you have recommended for funding?”

“I’m pretty sure that I don’t know enough to answer that question,” you say.

“That’s true, but you have a solid understanding of how the kidney works,” Dr. Essa challenges. “You can also do research to explore the potential these treatments and technologies have to treat or cure kidney disease. Once you do that, you have the foundation you need to compare the merits of funding improvements to dialysis technology versus kidney transplants.”

**Research and Analysis**

How have the following technologies changed over time?

Dialysis technology

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Human kidney transplants

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Bioartificial kidney transplants

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**Factors to Consider for Making a Decision**

What are the advantages of dialysis?

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What are the disadvantages of dialysis?

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What are the advantages of human kidney transplants?

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What are the disadvantages of human kidney transplants?

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What are the advantages of bioartificial kidney transplants?

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What are the disadvantages of bioartificial kidney transplants?

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What other information, if any, could help you make your decision? How will you find this information?

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**Make a Decision**

Which area of research would you recommend for funding? Use evidence from your research and discussion to support your choice.

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There is a long waiting list for human kidney transplants. Many patients do not live to obtain a new kidney. Which patients are eligible for kidney transplants and how it is decided who gets available organs in Canada?

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Should behaviours such as smoking, addiction, drug abuse, or previous noncompliance with medical regimens influence decisions regarding eligibility for organ transplant? Why?

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Should factors such as the cause of organ failure, presence of other systemic diseases, or first versus repeat transplants be considered in decisions regarding eligibility or priority?

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Should available organs be allocated on the basis of medical urgency, the likelihood of finding a transplant in future, projected survival, time on the waitlist, patient age, or geography?

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Should living organ donors be compensated for their donation?

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Should organ donation require opt in or opt out consent?

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Should a patient's priority on a transplant wait list increase if a living relative donates an organ to a transplant pool?

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