

Implantable Bioartificial Kidneys as a Substitute for Kidney Transplants

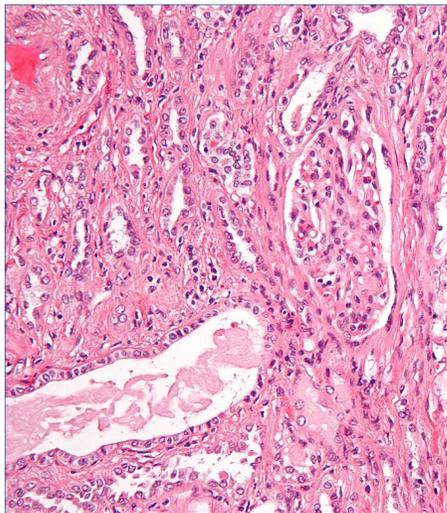
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Need

- In the US, there are more than 100,000 awaiting kidney transplants, and around 13 people die from not receiving a transplant in time¹.
- An estimated 75,000 people who require transplants will not receive one this year².
- High risk of transplant rejection
- **A practical solution to increase the amount of organs available for transplants is needed.**

Approach

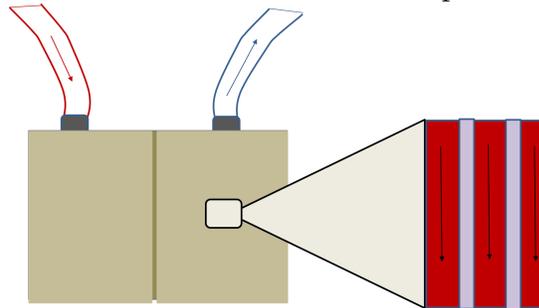
- An implantable artificial kidney can be used to replace dialysis machines and kidney transplants³
- To increase the use of bioartificial kidneys, we need to help increase funding and raise awareness for the use of this product.



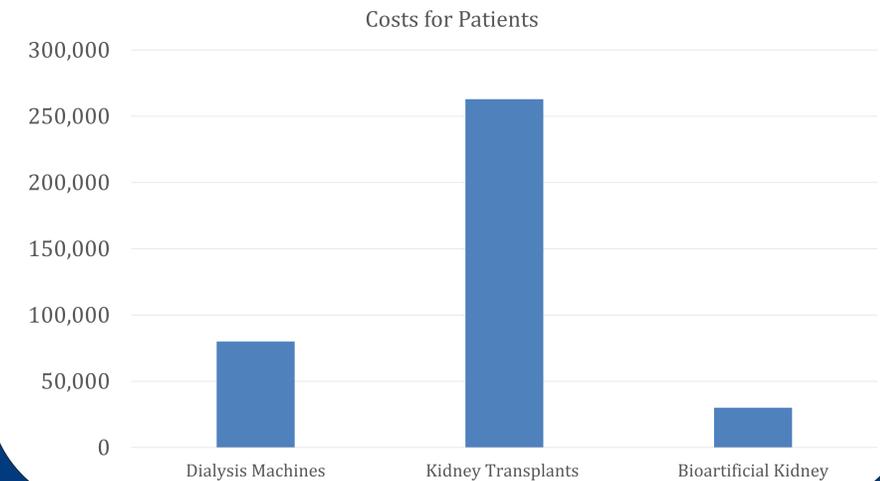
Close up of Kidney Cells⁴

Bioartificial Kidney Diagram

- Nanotechnology filter chips and kidney cells are used to mimic the processes of a normally functioning kidney.⁵
- There are layers of filter chips with living kidney cells between them.
- Filter chips would each have different shaped pores to perform different tasks.
- Cells would reabsorb nutrients and dispose of waste.



Artificial Kidneys will only cost about \$30,000 to produce, whereas the average cost of a kidney transplant in the US is \$262,900⁸.



Funding

Companies to Fund Production and Maintenance

American Kidney Fund

1. Funding for dialysis can go towards bioartificial kidneys.

American Transplant Foundation

1. Money given to living donors could be used for bioartificial kidney recipients.

Medicare

1. With less patients on dialysis, more money from ESRD can go to bio-artificial kidney recipients.

Medicare Spending
\$646.2 billion⁶

ESRD Spending
\$32.8 billion⁷

Kidney Transplants Spending
\$3.1 billion⁷

Results

- We expect that after providing fact sheets to doctors and patients, support for using bioartificial kidneys will increase.
- Funding for bio-artificial kidneys should increase due to the declining need for funding of kidney transplants.

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