

Slytherin

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Challenge

Lab 2

1. Provide estimations for best-case and worst-case scenarios, detailing the time required for the organ bank and the storage room to attain room temperature (22°C).

In the best case:

Medication room: 1 hour.

Organ bank: 0.5 hours.

Worst case:

Medication room: 51 hours.

Organ bank: 25 hours.

2. Given these coefficients, it is essential to determine the time required for the rooms to revert to their initial temperatures, assuming they reached room temperature as the energy was restored.

Lungs: 0°C – 8°C: 8 mins.

Liver: 0°C – 4°C: 8 mins.

Kidney: 0°C – 4°C: 8 mins.

Corneas: 2°C – 8°C: 11 mins.

Insulin: 2°C – 8°C: 140 mins.

Vaccines: 2°C – 8°C: 140 mins.

Factor VIII and other coagulation factors: 2°C – 8°C: 140 mins.

Conclusions

Taking into account the results on the simulation it gave us quite insightful information in order to decide if either the medication rooms or the organs rooms should be prioritize, as we can see in the on the worst case scenario the medication rooms have twice the delay on restoring to an optimal temperature, it is quite similar in the best case scenario, but talking only based off in terms of medical needs and not in purely quantitative data, the availability of a medical center to have access to medicines it is a lot more accessible due to pharmacy and other medical center nearby, where the logistics are easier than with the organs who are more fragile and harder to get, the insights that the model told us could be of a town located medical center, far away to other medical centers and pharmacies.

Talking of an isolated medical center it is more valuable have backup systems for the medications. At first hand, because rural medical centers don't have activities as transplantations, similarly maybe a blood bank but that's it included in medications. On the other hand, it's a longer temperature restoration time for medicines, and more so if it is as important as a venom antiserum vaccine or an adrenaline shot for a dying patient, following this line of thought due to the shorter restoration time for the organs that shouldn't necessarily be something to be that worried about besides as we said at the beginning of this paragraph isn't necessary taking this in count because probably this type of medical center is not available to storage organs.

