

EPIB 676: Final Project Proposal

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Title: Blood Donor Return Simulation Model

- Decision problem:

Most medical care depends on a steady blood supply to meet urgent care needs in healthcare facilities. Blood collection sites often issue a hemoglobin deferral to donors when tested for low hemoglobin levels.

Making an informed decision about potential changes to inter-donation interval and deferral policies depends on how such policies impact long term donor return.

This highlights the importance of blood collection sites evaluating their deferral policies and understanding the significance of encouraging donors to return promptly once eligible.

- Alternatives:

- Standard 56 day inter-donation interval (8 weeks for both men and women)
- 12 weeks for women , 8 weeks for men
- 12 weeks for both men and women

- Analytic framework:

Comparative effectiveness: count of completed and hemoglobin deferral

Profit Maximization: estimated revenue

- Modeling method:

Simulation model: using predictors from previously implemented penalised cox proportional hazard model to simulate donor's time to return under different alternatives .

- The model will have only operational outcomes.

- Included costs:

- Count of completed donations and hemoglobin deferrals

- Estimated revenue = profit from completed donation - cost of a hemoglobin deferral or completed donation
- This project depends on research I began before this semester as a part of my master's thesis.