Organ Sequence Number (SN) is not a Proxy for Organ Quality

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Background

- Lung transplantation is the only option for several end-stage diseases.
- Criteria for acceptance can be subjective and vary significantly between transplant centers.
- Eligibility is determined by an individual's position on the "match run."
- There is no evidence to support the use of an organ's sequence number (SN) in the surgical decision-making process.

Objectives

- We sought to determine factors associated with organs with a higher SN and whether SN had an impact on mortality.

Methods

Design: Cohort study

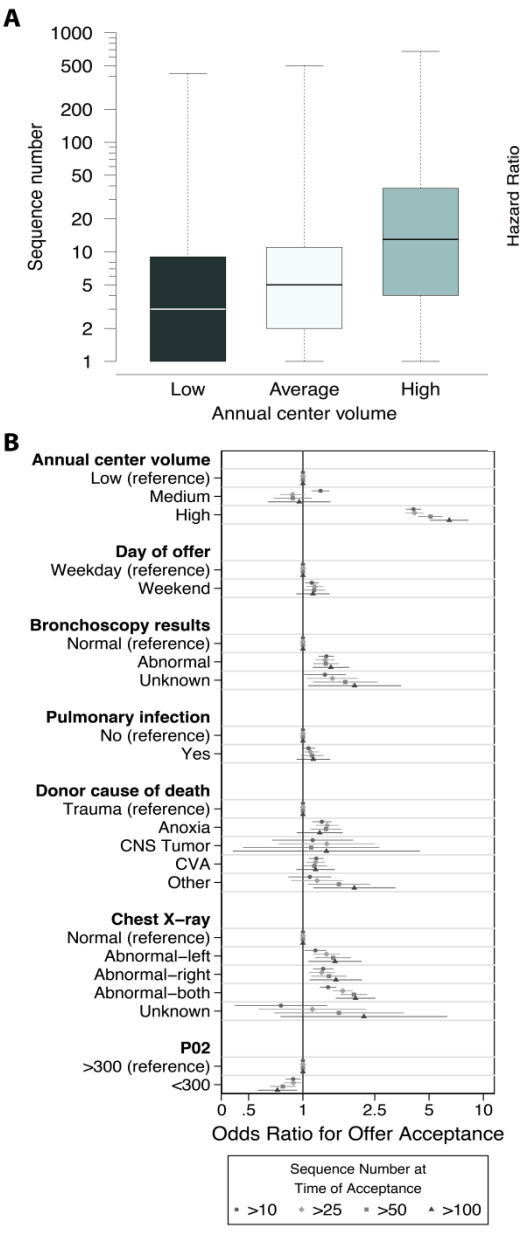
Study Population:

- 10, 822 lung transplant recipients
- Exclusions: multivisceral, redo, and pediatric lung transplants

Statistical Analysis:

- Multivariable logistic regression was used to quantify the association between SN and a selected set of factors.
- Mortality differences based on the final SN of an organ were examined using a Royston-Parmar model.

Results



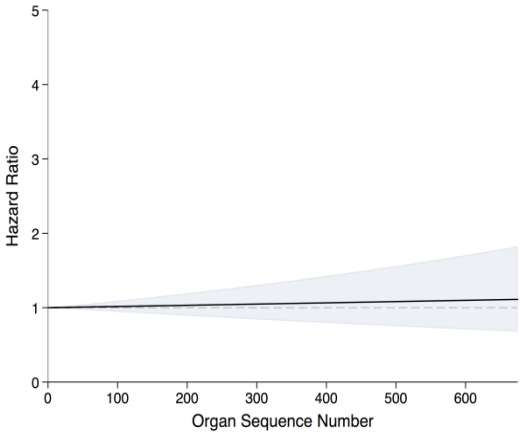


Figure 1A. Distribution of recipient's lung transplant SN by center volume

- Higher SN organs used for transplant were significantly associated with abnormal organ quality measures and offers to high volume centers.

Figure 1B. Factors associated with acceptance of lung offers above or equal to SN 10, 25, 50, and 100

- Pulmonary infection, donor cause of death, and timing of offer were not associated with a higher SN

Figure 2. Association of organ sequence offer number at the time of acceptance and survival.

- Mortality comparisons between offers accepted after SNs #10, 25, 50 and 100 demonstrated no difference between lower or SN #1 offers.
- We found no evidence of a non-linear effect between SN and mortality, or a time-dependent hazard ratio.

Limitations

- We are limited to information available in an administrative database, and other important information may be missing that would provide insight into the reasons organs were turned down.

Conclusions

- Of the organs accepted for transplant during the study period, almost 70% were accepted by the top ten matched recipients.
- We did not find an association between SN and mortality.
- This suggests that, at least on average, an organ's offer number does not provide information about quality beyond other available metrics.