

# Survey of Canadian Transplant Surgeons Concerning Antemortem Heparin in Deceased Liver and Kidney Donation

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## INTRODUCTION

- Antemortem heparin administration in donation after circulatory determination of death (DCD) may improve perfusion and prevent graft thrombosis.<sup>1</sup>
- The role and ethics of its use in DCD remains unclear and varies internationally.<sup>2, 3</sup> It is used in Canada and prohibited in the United Kingdom, yet kidney and liver outcomes remain favourable in both jurisdictions.<sup>2, 3, 4</sup>
- Transplant surgeons' perceptions and practices regarding antemortem heparin administration may influence the direction of further research.

## OBJECTIVE

To elucidate the stated benefits and practices of antemortem heparin for deceased organ donors among Canadian liver and kidney transplant surgeons.

## METHODS

- A 32-item electronic survey was completed by one surgeon at each of 2 adult liver and 9 kidney transplant programs in Canada.
- Survey response options included Likert scales, multiple choice selections, and free-text. We pre-tested face validity, clarity and ease of use.
- Through a multi-pronged snowball sampling approach, we identified and contacted potential respondents by telephone or email.
- Descriptive data analyses include counts, percentages, means and standard deviations where appropriate.

## RESULTS

| Province                         | Kidney |       | Liver |       |       |       |       | Total |
|----------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|
|                                  | BC     | AB    | SK    | MB    | ON    | QC    | NS    |       |
|                                  | ---    | (n=1) | (n=1) | (n=1) | (n=1) | (n=3) | (n=2) | (n=9) |
|                                  | (n=1)  | (n=1) | ---   | ---   | ---   | ---   | ---   | (n=2) |
| <b>Respondent/Program</b>        |        |       |       |       |       |       |       |       |
| Transplants per year per program | --     | 100   | 60    | 60    | 150   | 60    | 100   | 530   |
|                                  | 80     | 120   | ---   | ---   | ---   | ---   | ---   | 200   |

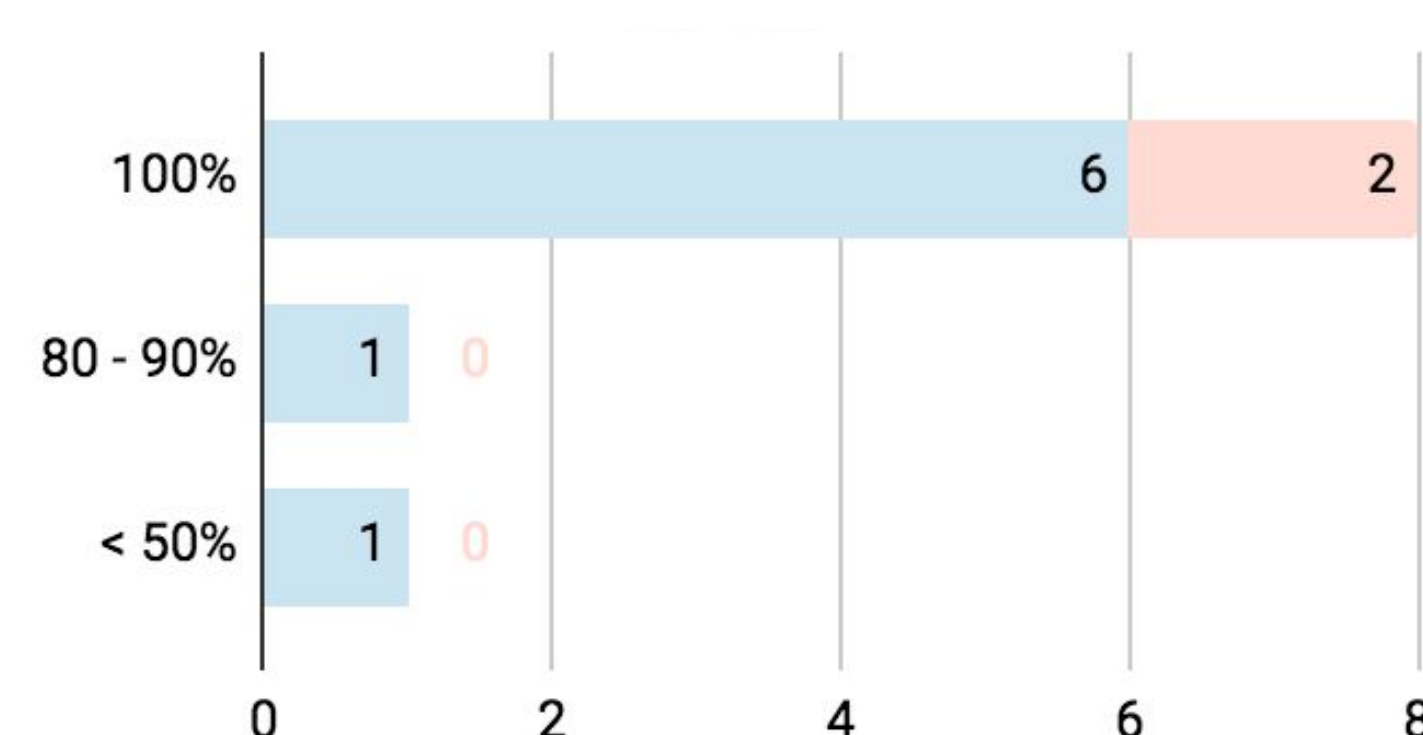
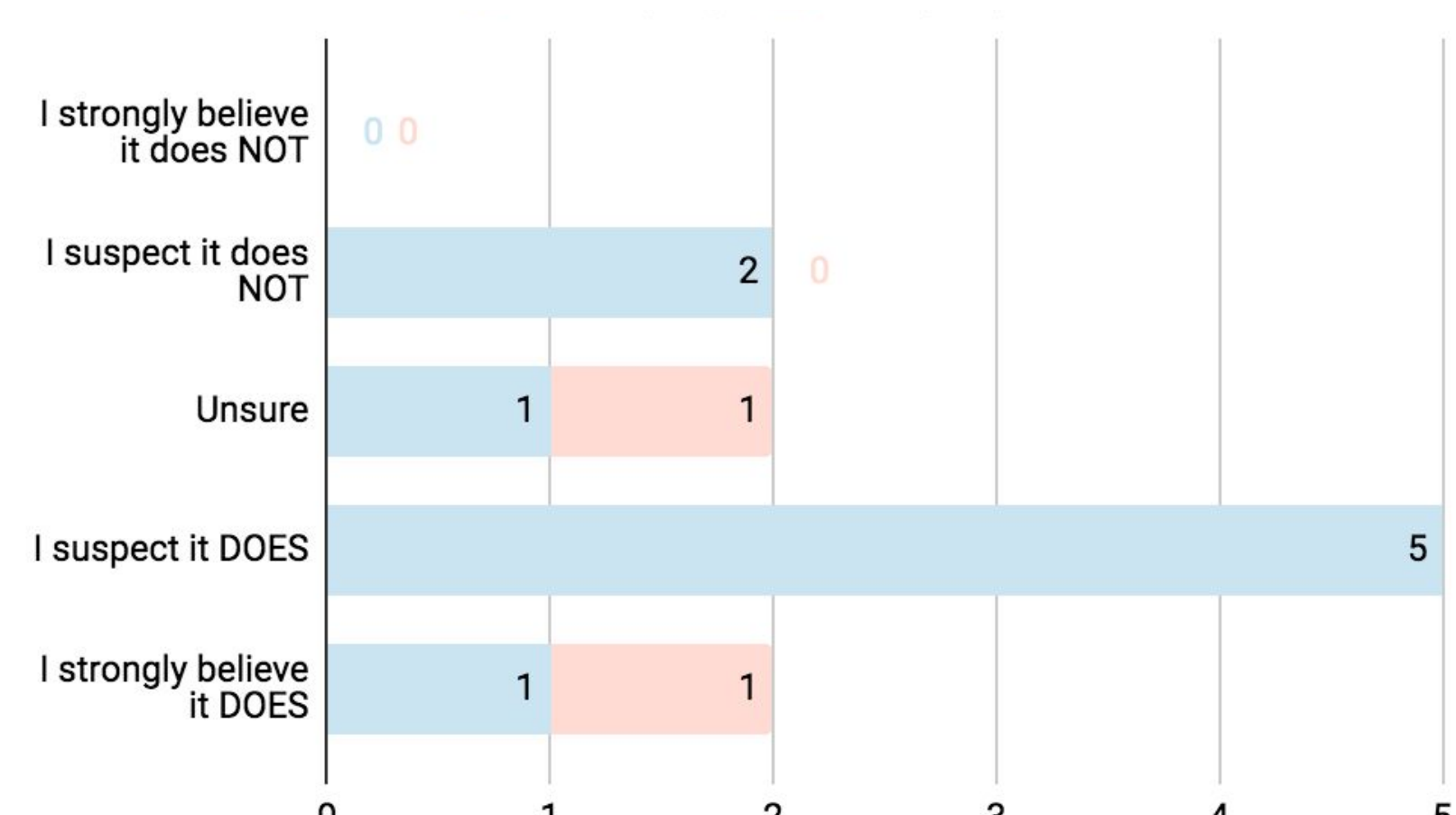
Table 1. Demographics of included respondents by province.

Figure 2.a-f Overview of Attitudes and Beliefs. Selected survey questions summarized.

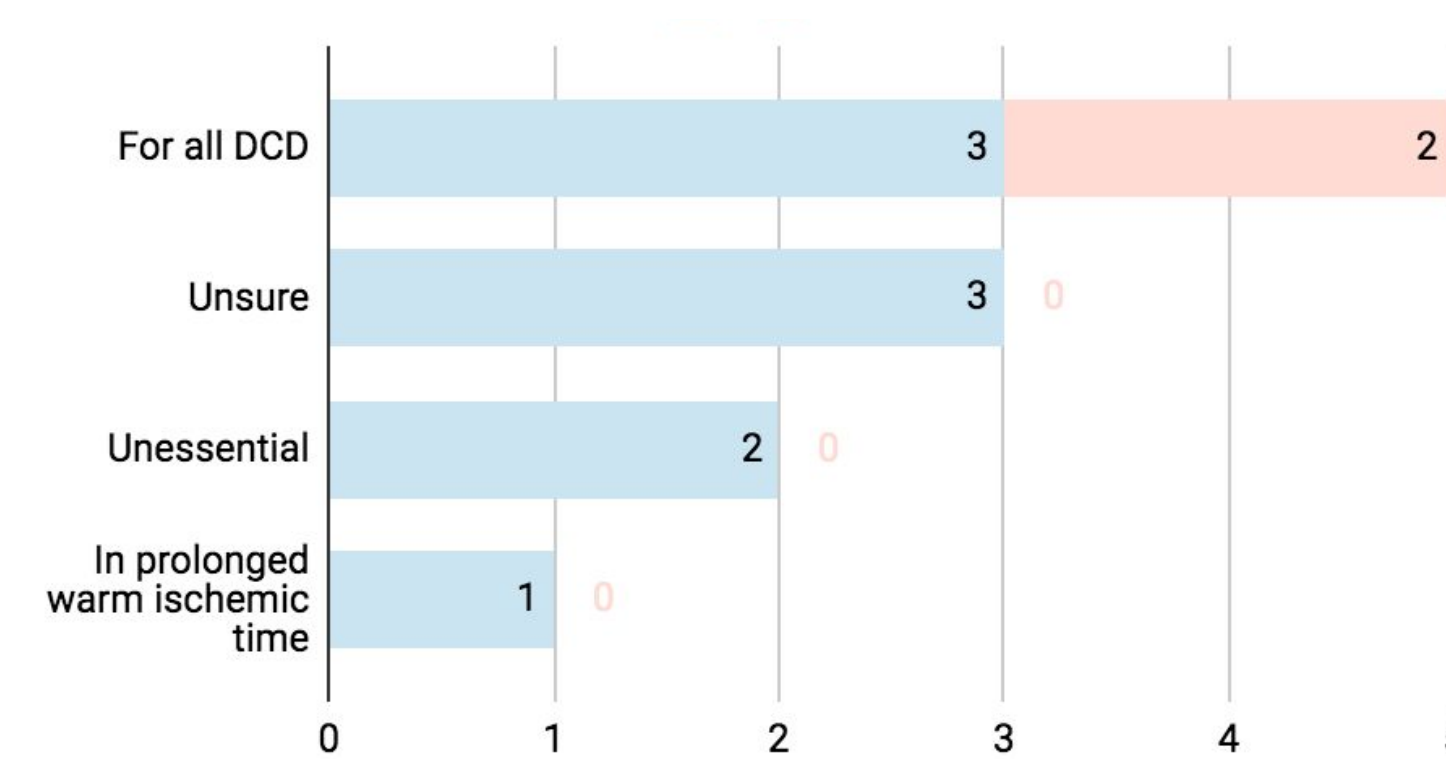
Kidney (n=9) Liver (n=9)

On a scale of 1-5, please rate the extent to which you believe antemortem heparin prevents postoperative complications to improve transplant success.

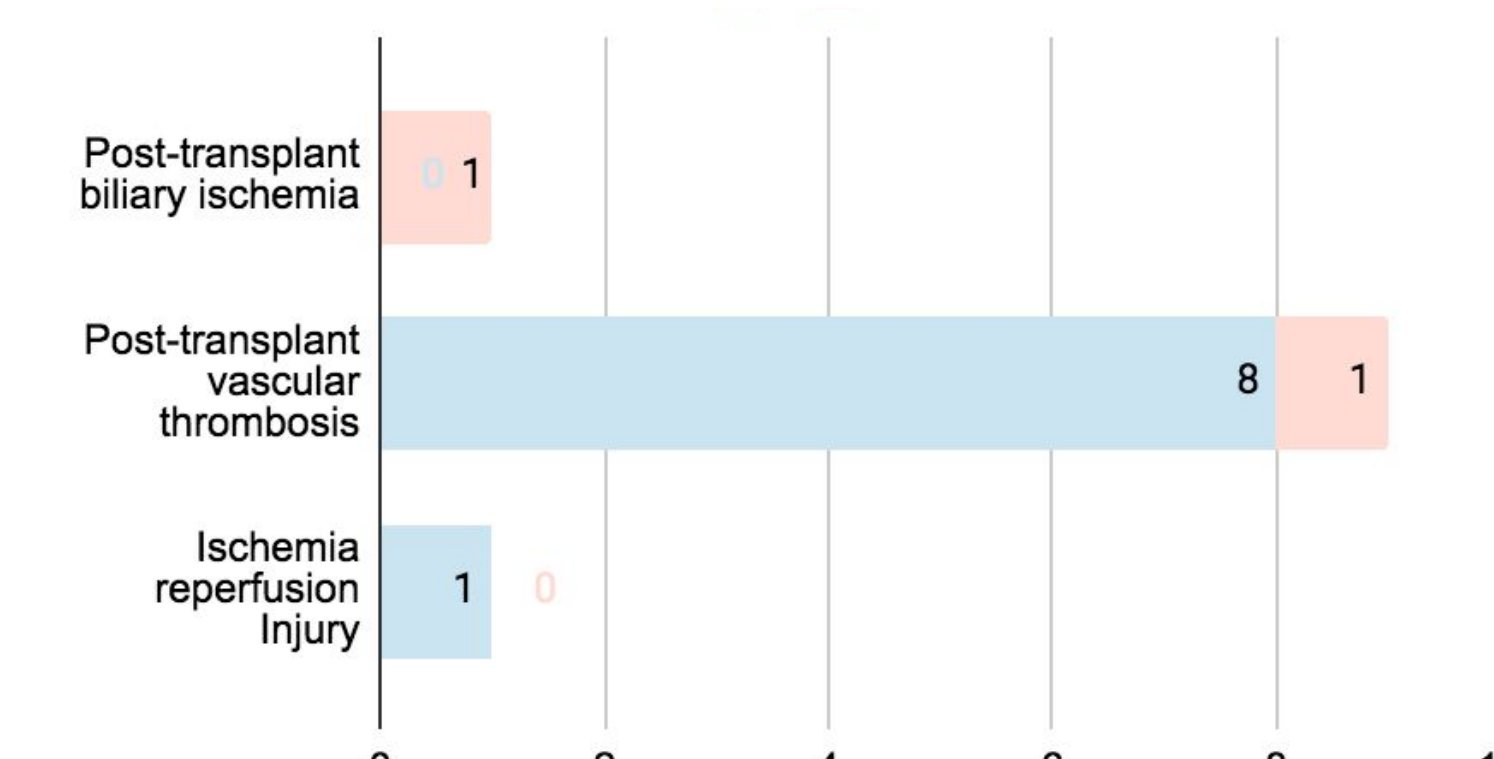
In your current practice, for what approximate percentage (%) of DCD donors do you recommend antemortem heparin?



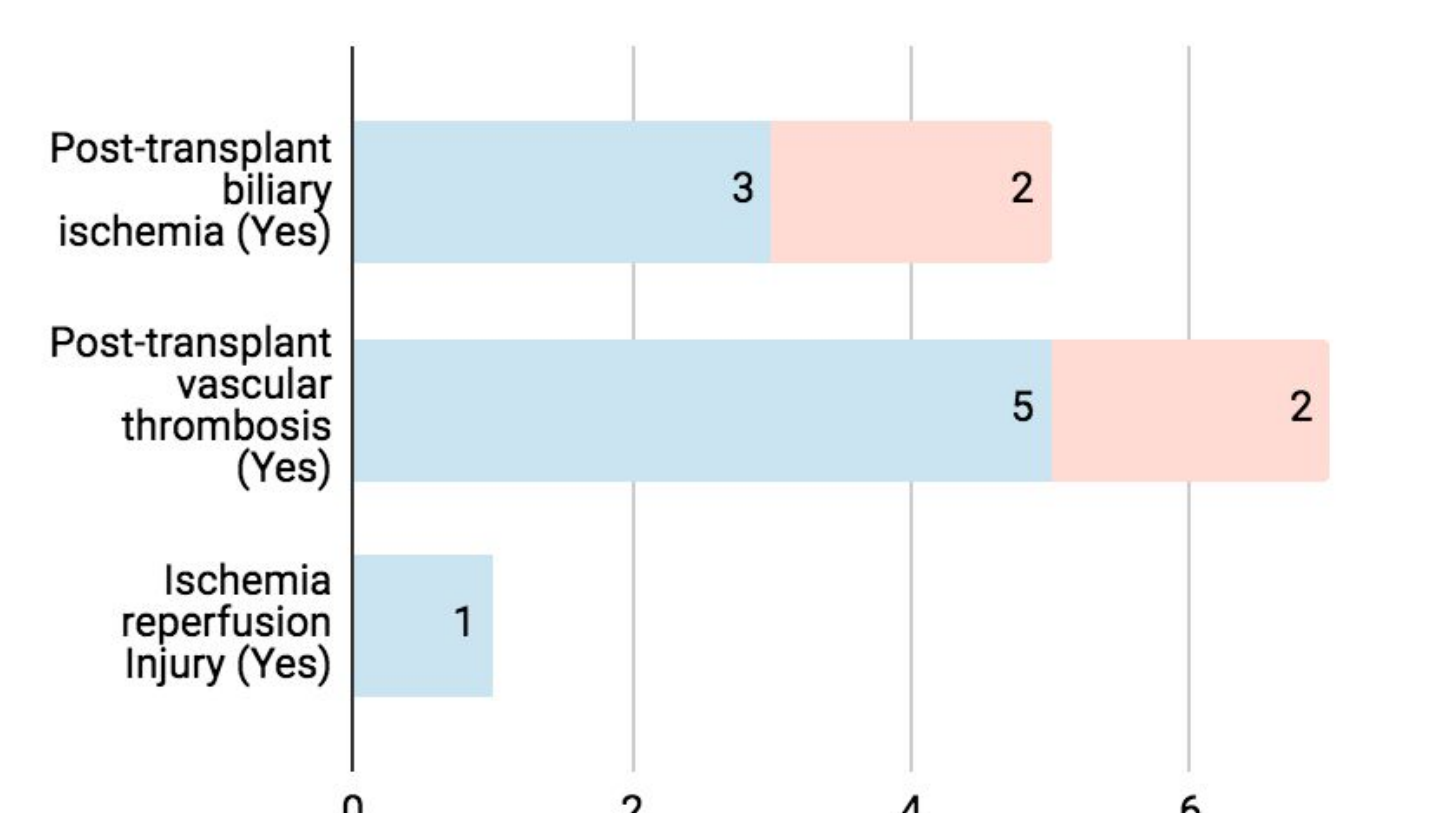
When, in your opinion, is antemortem heparin essential?



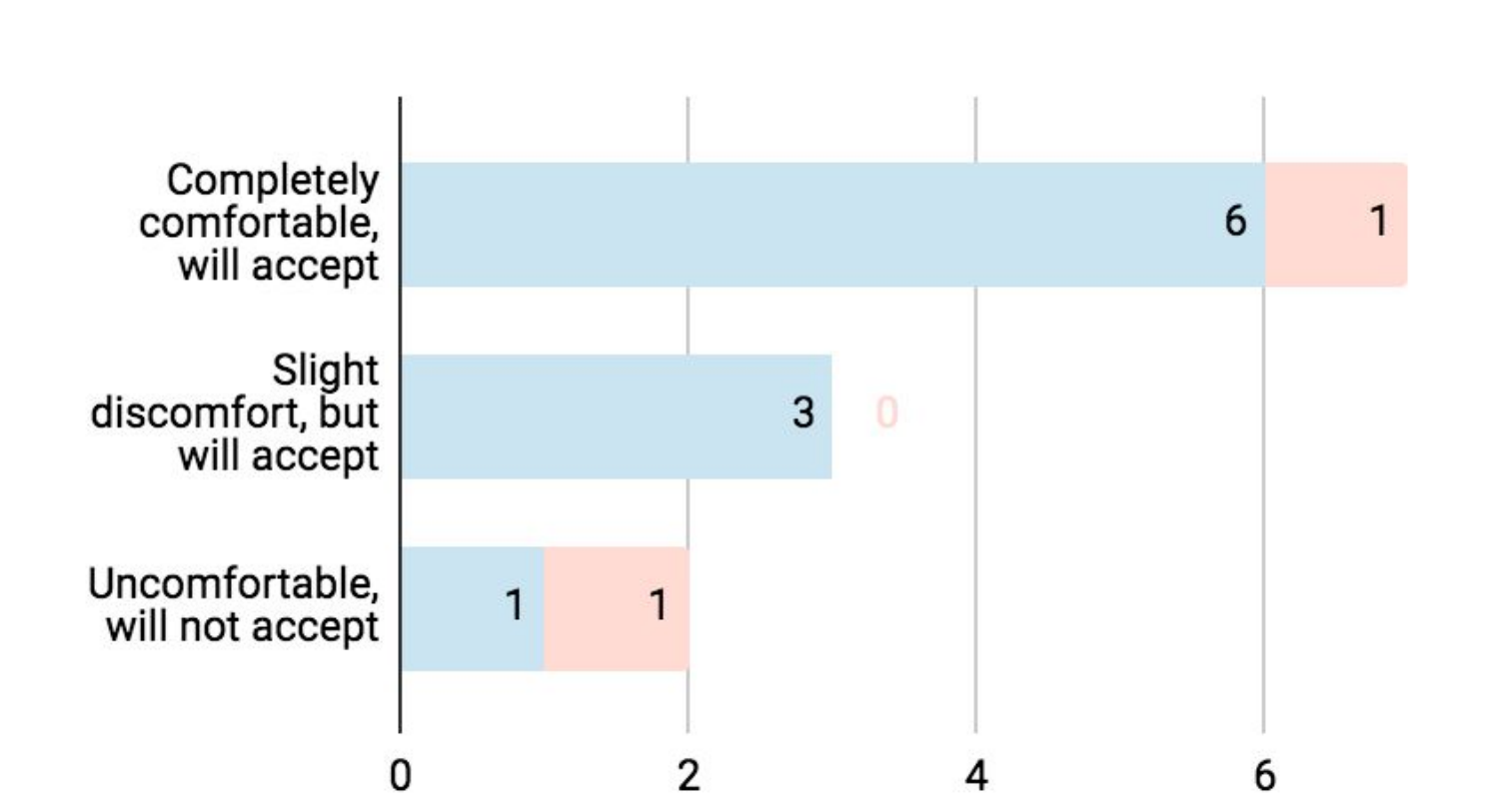
Which of these complications is most concerning to you?



Which of the following complications are reduced with the administration of antemortem heparin to DCD donors?\*



On a scale of 1-3, how comfortable would you be in accepting kidneys from DCD donors that had participated in a placebo controlled trial of antemortem heparin?



\*The survey question required Yes/No responses for each complication listed, with *Other* being one of them. *Other* is excluded from the table. *Yes* could be answered for more than one complication.

## DISCUSSION

- Antemortem heparin dosing and requirement are subject to great variability as there is no nationally standardized management of its use.
- The prevailing view of antemortem heparin use in DCD donors is tending towards positive. Most transplant surgeons believe it to be essential and beneficial for DCD donors based on personal clinical experience, training that they have received, physiologic rationale, and existing protocols within their transplant program. However, a majority also felt that evidence to support these beliefs is lacking and further clinical research is needed.

### Limitations

- Findings are not generalizable to Canadian liver and kidney transplant surgeons due to the overall low to moderate response rate. Further research is required to support the findings extracted from this small sample.

## CONCLUSION

Clinicians should be aware that antemortem heparin use varies widely nationally, which calls for caution when adhering to non-standardised regional norms of practice. Future trials investigating this issue are likely to receive support from liver and kidney transplant surgeons.

## References

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3. Keshava, H. B., Mason, D. P., Yun, J. J., Murthy, S. C., Vakili, N., Pettersson, G. B., & Farver, C. F. (2010). 510: Heparin and Thrombosis in Donor Lungs after Cardiac Death. *The Journal of Heart and Lung Transplantation*. <https://doi.org/10.1016/j.healun.2009.11.527>
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