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Paediatric pre-operative fasting: How can we improve?

Erika Dulay[1,2,4], Bronwyn Griffin[1,2], James Brannigan[3], Craig McBride[1,3], Adrienne Hudson[1,4,5,7] and Amanda Ullman[1,2,4,6]

[1]Children's Health Queensland Hospital and Health Service, South Brisbane, QLD, Australia, [2]School of Nursing and Midwifery, Griffith University, Nathan, QLD, Australia, [3]Faculty of Medicine, The University of Queensland, Brisbane, QLD, Australia, [4]School of Nursing, Midwifery and Social Work, The University of Queensland, Brisbane, QLD, Australia, [5]Learning and Workforce, Children's Health Queensland Hospital and Health Service, Brisbane, QLD, Australia, [6]Children's Health Research Centre, Faculty of Medicine, Brisbane, QLD, Australia and [7]School of Nursing, Queensland University of Technology, Brisbane, QLD, Australia

OVERVIEW

- Before trialling strategies to improve the fasting experience for children, it is important to identify what strategies have been implemented in the literature.
- Categorising implementation strategies and analysing them allows a more targeted approach for future researchers and increases efficiency in the field.

INTRODUCTION

- Preoperative fasting is the standard of care for patients undergoing a procedure with general anaesthesia.
- Despite the increased leniency of fasting guideline recommendations, prolonged preoperative fasting periods continue to disproportionally affect paediatric patients.
- Paediatric patients are disproportionally affected by prolonged fasting periods. They have smaller energy reserves and immature organ systems, with diminished capacity to compensate during fasting periods [1].
- This review maps existing interventions optimising paediatric fasting practices, to explore strategies that can be best applied in clinical practice.

METHODS

- A search strategy applied to PubMed, CINAHL, Embase, Scopus, and the Cochrane Database involved four key concepts:

  (1) fasting, (2) preoperative, (3) paediatric, and (4) quality improvement intervention.
- The Preferred Reporting Items of Systematic Reviews and Meta-analyses (PRISMA) extension for Scoping Reviews was utilised in this review.
- Paediatric studies with an intervention aimed at reducing preoperative fasting duration or improving adherence to recommended fasting guidelines were included in the review.
- Thematic analysis was undertaken through extraction of key elements of each included study to categorise implementation strategies
- As this was a scoping review of published works, a formal ethics submission was not required, however it was conducted in accordance with guiding principles of the National Statement on Ethical Conduct in Human Research 2023.

CONCLUSIONS

- A variety of interventions have been studied to optimise paediatric preoperative fasting duration.
- These interventions show potential in reducing preoperative fasting duration.
- Structured implementation methods must be used to enhance intervention success

REFERENCES

[1] Preoperative fasting in children: review of existing guidelines and recent developments Frykholm, P. et al. British Journal of Anaesthesia, Volume 120, Issue 3, 469 - 474
[2] Andersson H, Hellstrom PM, Frykholm P. Introducing the 6-4-0 fasting regimen and the incidence of prolonged preoperative fasting in children. Paediatr Anaesth 2018; 28: 46e52
[3] Bauer MS, Damschroder L, Hagedorn H, Smith J, Kilbourne AM. An introduction to implementation science for the non-specialist. BMC Psychol 2015; 3: 32

RESULTS

- Thirteen heterogeneous studies; approximately 31 000 children; five continents.
- Each intervention studied fell into at least one of the following six themes:

(1) change in facility protocol

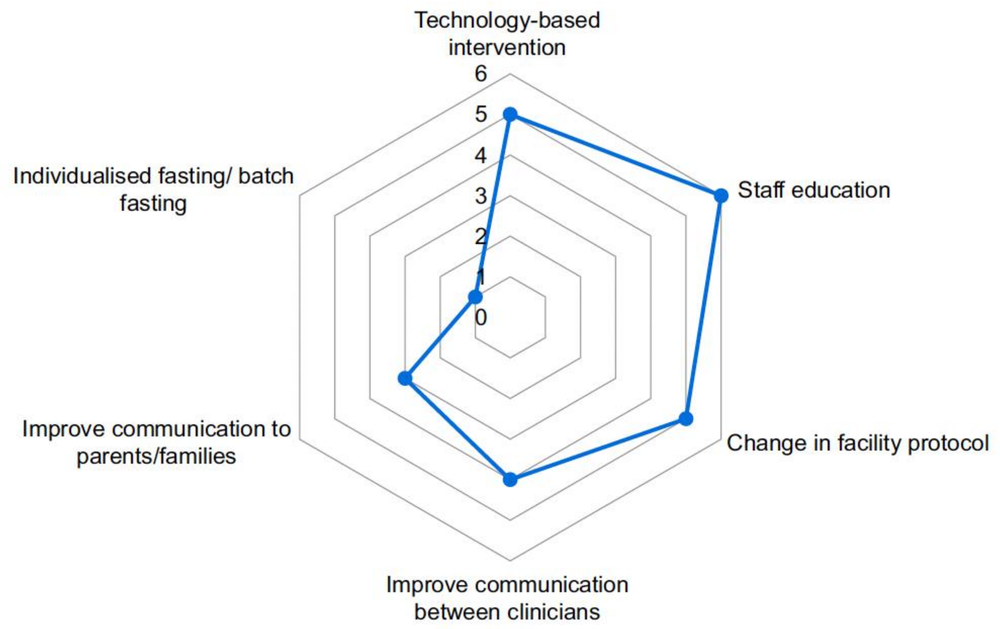
(2) technology based intervention

(3) individualised fasting programs

(4) processes to improve communication between clinicians

(5) processes to improve communication to parents and families

(6) staff education



Radar diagram demonstrating intervention study frequency

- Eleven of the thirteen studies effectively reduced fasting times for children.
- Average improvement in mean fasting time reduction of approx. two hours.
- Only five studies measured adverse events (e.g. aspiration events) despite emphasising the importance of maintained safety in their reports.

DISCUSSION

- Despite the commonality of paediatric surgery, this scoping review found only a small number of studies focused on reducing actual fasting times for children.
- Of the included studies that demonstrated a reduction in actual fasting time, a combination of interventions was applied in a bundled manner, as opposed to a single intervention, such as Andersson and colleagues [2].
- Contextual factors (i.e. willingness to change) can be hard to define but exert a dominant influence over the success of an institutional change, such as improvements to everyday practices.
- Implementation science frameworks are crucial to embedding change [3] but were only utilised in five of the thirteen studies, highlighting systematic methods in which future research could be strengthened.
- Poor intervention design and failure to engage adequately with key stakeholders lead to failure of interventions.