A NOVEL SYSTEMS-BASED HIGH-IMPACT IMPLEMENTATION STRATEGY TO IMPROVE PROCEDURAL PAIN FOR INFANTS IN CANADIAN NICUs: CLINICAL AND IMPLEMENTATION EFFECTIVENESS

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INTRODUCTION

- Infants hospitalized in Neonatal Intensive Care Units (NICUs) undergo ~8 painful procedures/ day.
- Pain has immediate and long-term consequences on neurodevelopment yet synthesized evidence on pain-relief is not effectively implemented in practice.
- We developed the Implementation of Infant Pain Practice Change (ImPaC) Resource as a web-based implementation strategy for improving NICU pain practices.

GOAL

- We aimed to evaluate clinical and implementation effectiveness of ImPaC.

METHODS

A hybrid type 1 effectiveness-implementation design (cluster randomized controlled trial and longitudinal descriptive study) was utilized.

Eligible NICUs with >15 beds were randomized to intervention (INT) or wait-listed to usual care (UC) for 6 months.

NICUs in the UC group then were offered ImPaC in an equivalent manner to the INT group.

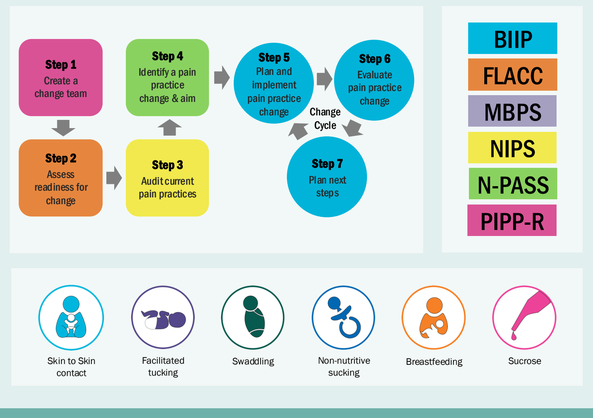
Primary outcomes were the number of painful procedures/ infant/ day and the proportion of infants with assessment and management associated with procedures.

Secondary outcomes were feasibility (time using ImPaC) and intervention fidelity (implementing ImPaC as designed).

Descriptive statistics summarized data.

Parameter estimation was facilitated by Generalized Estimating Equation models accounting for clustering of infants and procedures within NICUs and for fidelity.

ImPaC Resource



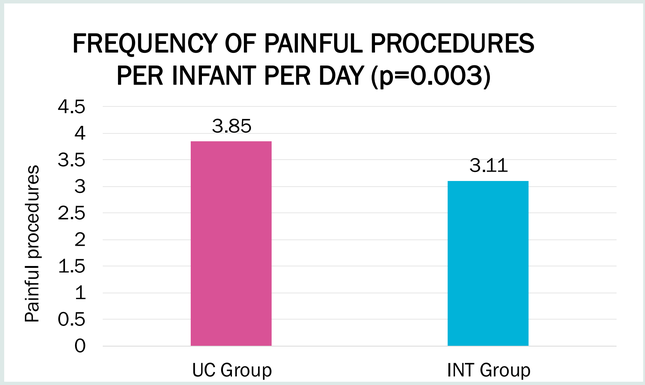
> "ImPaC demonstrates clinical and implementation effectiveness. NICUs that found ImPaC feasible and implemented it with intervention fidelity had better pain outcomes."

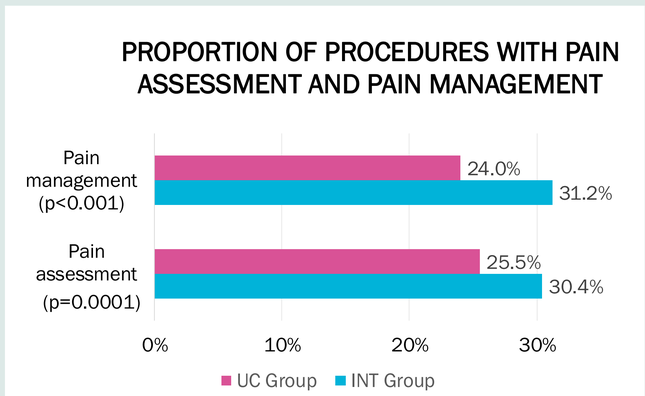
CONCLUSION

- Clinical and implementation effectiveness of the ImPaC Resource resulted in improved pain outcomes in Canadian NICUs.
- Further exploration of barriers and facilitators needs to be undertaken to understand how to enhance implementation outcomes.
- Implementation strategies need to be customized to implement successfully beyond the Canadian context.

RESULTS

- Data from ~30 infants/ site (INT=678, UC=325) were collected from 23 NICUs (INT=12, UC=11).





- NICUs spent an average of 10.18 (±4.36) hours using ImPaC.
- 14/23 (60.9%) NICUs implemented ImPaC as intended.
- NICUs who spent more time using ImPaC and with fidelity had fewer painful procedures/ infant/ day and increased use of pain assessment and management strategies.

	FEASIBILITY		FIDELITY		
	Effect size and 95% CI	p-value	Completed 1 cycle or more	Did not complete a cycle	p-value
Painful procedures/ infant/24h	-0.09 (-0.15 to -0.02)	0.013	2.83 (3.75)	3.57 (4.30)	0.020
Any validated pain measure used with procedure	1.06 (1.03 to 1.08)	<0.001	443 (37.2)	199 (21.6)	<0.001
Any pain management associated with procedure	1.10 (1.07 to 1.13)	<0.001	466 (39.2)	193 (21.0)	<0.001

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