

The Supportive Positioning in NICU Education (SPINE) project

Olga Kazantseva, MSc(A)¹, Louise Gervais, MScN¹, Adeline Launay, BScN¹, Stephanie Mardakis, MSc(A)¹, Christine Labelle, MSc(A)¹, Sonia Semenic, PhD^{2,3}

¹Neonatal Intensive Care Unit, Montreal Children's Hospital, McGill University Health Center; ²Research Institute of the McGill University Health Center, ³Ingram School of Nursing, McGill University, Montreal, Quebec, Canada

Acknowledgments: Project funded by the Nursing Research Funds for Nurses at the MUHC, Small Grants Award

Aim

1. **Improve** and **sustain** developmentally supportive positioning practices for premature infants in NICU
2. **Engage** bedside nurses in the **co-creation** of a tailored education program
3. **Pilot test** the educational intervention



PDSA cycle / Change plan

December 2018: survey in NICU revealed suboptimal positioning practices

December 2018: Grant application and creation of the education content for the Program

Summer 2019: unit-wide survey to assess confidence, knowledge and preferred ways of learning about supportive positioning

Beginning of 2020: working group sessions to co-develop education program with nurses

Spring 2020: Creation of education materials based on working group input

May-June 2021: start of the pilot project of the program

August-October 2021: 3 month evaluations of the pilot project completed

Importance

- Abnormal movement patterns and effects of gravity on the preterm neonate **may impede muscle tone development** and **delay the achievement of developmental milestones**
- Supportive positioning interventions have demonstrated to **improve musculoskeletal outcomes** in at-risk neonates, **maximize rest periods**, **foster self-regulation and improve pain responses**
- NICU **nurses play a critical role** in optimizing infant musculoskeletal development through supportive positioning
- Audits and observations revealed **wide variation** in supportive positioning practices in the NICU at the Montreal Children's Hospital

Development of the Project

Phase #1:

- 25-question **electronic survey** on NICU nurses' beliefs, confidence, perceived barriers/facilitators and preferred modes of learning related to supportive positioning

Phase #2:

- 2 half-day workshops** with 11 volunteer NICU staff nurses to review the survey findings and co-design the content and teaching strategies for the unit's educational program on supportive positioning
- Pre-test/post-test pilot study** with N=30 volunteer NICU nurses with repeated measures of supportive positioning knowledge, confidence and skills pre-education, 1 week and 3 months post-education

Data / Results (pre/post pilot study)

PHASE 1 RESULTS

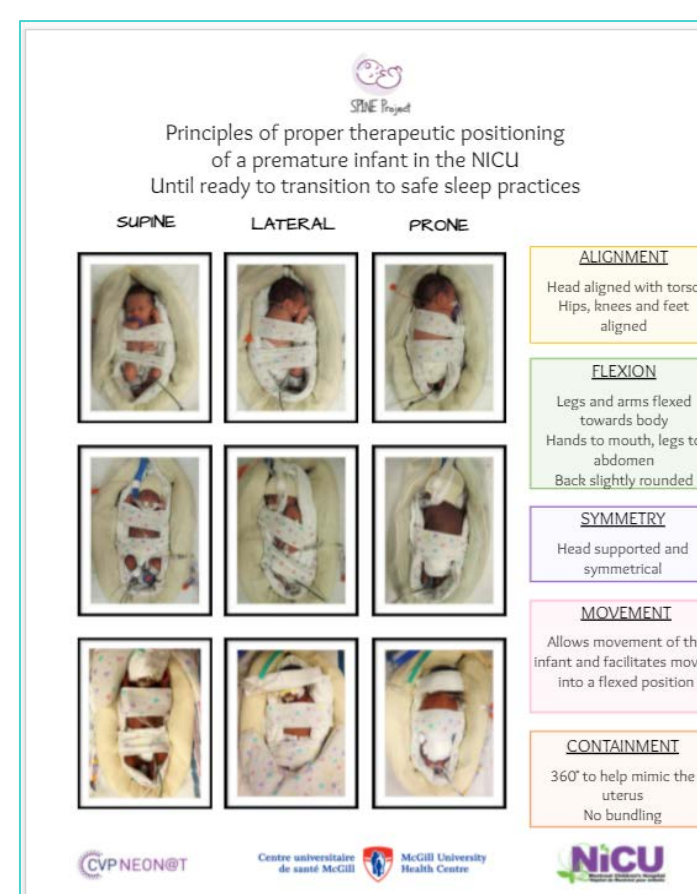
- 63/193 NICU staff nurses** completed the anonymous, online survey (33% response rate)
- Confidence** related to supportive positioning was **highest** for the ability to: 1) recognize improper positioning, 2) use positioning tools, 3) provide supporting positioning to infants on CPAP
- Confidence** was **lowest** for the ability to: 1) describe negative consequences of improper positioning; 2) teach parents or colleagues about supportive positioning
- Majority **DISAGREED** that **positioning tools are available** on the unit when needed (76%) or that they **received sufficient education** re. supportive positioning (68%)
- Majority **AGREED** that they have **enough time** to provide supportive positioning (87%) and that supportive positioning is a **high priority** for their patients (98%)

Table 1: % of nurses rating teaching methods for supportive positioning as "very useful" on 4-point scale of "not at all" to "very" useful (N=63):

Simulations	68%	Audiovisual aids	35%
Workshops	56%	Interactive teaching	35%
Bedside consultation	49%	Online modules	22%
"Lunch 'n Learns"	41%	Independent reading	17%

PHASE 2 RESULTS

- Mobile 30-minute in-service** provided to groups of 2-4 nurses directly in the NICU hallways by the unit's nurse educators or staff nurse with expertise in supportive positioning
- One-on-one **bedside coaching session** provided to each nurse post in-service
- Procurement of more positioning tools for the NICU
- Development of **visual aids** to support/reinforce teaching, posted in key areas of the NICU
- Addition of visual guides for how to position infants of different gestational ages to all infant care plans:



Scan here for visual positioning guides for infants of different GAs:



Scan here for adapted IPAT



Scan here for pre/post questionnaire:



Table 2. Within-subjects, repeated measures analyses of mean scores on positioning knowledge, confidence and skills pre- vs. post-education (N=30) NICU nurses

Mean scores	*N	Time 1 Pre-education	Time 2 1 wk post-education	Time 3 3 mos post-education
Knowledge test (out of 15)	22	6.9	12.8	13.2
Confidence rating (out of 10)	22	6.9	7.8	8.1
**IPAT (out of 14)	19	5.4	12.4	12.7
*** IPAT (out of 14)	10	10.2	12.1	12.6

- Improvements in knowledge, confidence and IPAT scores between T1 vs. T2 and T1 vs. T3 were significant at p=.000 for all 3 measures.

* Analyses only includes nurses who completed the measures at all 3 time points.
** Adapted version of the Infant Positioning Assessment Tool. IPAT score = 0 if infant was bundled (14/30 infants were bundled at Time 1).
*** Mean IPAT scores for unbundled infants only.

Conclusion

Engaging NICU nurses in the **co-creation** of an educational program may improve their **knowledge, confidence** and **skills** related to supportive positioning

Next Steps

- ✓ Unit-wide rolling out of the education program
- ✓ Incorporating standardized supportive positioning education in nurses' orientation teaching
- ✓ Teaching other disciplines about supportive positioning (i.e. RTs, residents, etc)
- ✓ Audits to verify adherence to practice
- ✓ Validation of the adapted IPAT