A Quality Improvement Project for Non-pharmacological Pain and Stress Management

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Background

Innovations, step three in the FINE training pathway¹ for infant and family centred developmental care, explores systems organisation, and includes a quality improvement project to give students experience of change management processes. This project took place in a Level III NICU in a large urban centre with supervision from senior FINE faculty with change management experience.

Aim

Hospitalised preterm and sick infants are exposed to many painful and stressful events. Repeated pain and stress may have long-term consequences for neurodevelopment² and in many situations non-pharmacological interventions are the first line of protection.³ This project aimed to improve the use of non-pharmacological pain and stress management strategies by 50% over a period of 6 months (July – December 2019) using the Evaluation of Intervention (EVIN)⁴ scale to train staff and evaluate practice.

Methods

The project was carried out in an eight bed high dependency unit with three to four nurses attending per shift. The project lead (who had completed FINE 2) trained a core team of FINE 1 educated staff to score the EVIN at the bedside. The EVIN measures the quality of non-pharmacological pain management during caregiving or medical procedures. Inter-rater reliability was checked. The selected intervention was heel lancing which was the most used method of blood sampling in both term and preterm newborn infants.

The project applied the Plan-Do-Study-Act (PDSA)⁵ cycle to bring about the desired improvement in the use of non-pharmacological interventions. Several plans for the project were modified after consultation with the FINE supervisors.

PDSA1 (April 2019): Baseline data was collected using EVIN scores for 20 heel prick or lancing episodes performed by nurses or doctors. Over two weeks the project lead and core team trained staff to use the EVIN with observation and scoring at the bedside or during simulations.

PDSA 2 (July 2019): Four weeks post training EVIN scores were again collected by core members working in pairs. Following this a second PDSA cycle was initiated with more training, engagement of parents, feedback, and campaigning.

PDSA 3: (December 2019): Further data was collected, evaluated, and disseminated. The Hospital Quality Improvement Team advised that the project be expanded to

involve the whole of the Neonatal Unit (46 beds: 16 Newborn Intensive Care Unit, 8 High Dependency Unit, 22 Special Care Baby Unit). Training sessions have now captured most of the nurses in unit. The EVIN will be incorporated into the unit pain management guideline entrusted to the project lead.

Results

An EVIN score of >85% indicates best practice and < 70% indicates poor practice. Average EVIN scores improved from 65% (poor) at baseline, to 71% (intermediate) at the mid-point and 87% (best practice) at the PDSA³ evaluation. The percentage of improvement in best practice scores increased from 0% at baseline to 59% at PDSA.³ Areas that showed the most improvement were rest before procedures, pacing of the procedure and facilitation of self-regulation. Areas identified for further improvement were provision of a sweet oral solution for painful procedures, support from a second person and facilitation of sucking.

Conclusion

A pilot quality improvement innovation project performed in the framework of FINE 3 training, improved standards of non-pharmacological pain management and was adopted as a model for achieving wider changes across all levels of care in a busy Level III neonatal unit. The EVIN proved to be a practical tool for training and evaluation of practice.

Relevance to NIDCAP

FINE 3 is part of an educational pathway that is endorsed by the NFI as foundations in NIDCAP education. The experience offered in FINE 3 shows promise as a way to nurture change management skills that could be applied either before, or even after, NIDCAP training.

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