



The Sobreviver (Survive) Project

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ABSTRACT

A neonatal intensive care unit (NICU) stay can be stressful for parents and their infants. The Sobreviver Project described in this paper was a project funded by the European Union to attempt to ease parental stress. This article will describe the interventions used in three NICUs in Portugal and the outcomes of this project.

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Background and Purpose

In March, 2014 XXS – Associação Portuguesa de Apoio ao Bebê Prematuro – (Portuguese Parents of Premature Babies Organization) launched C.A.R.E. (Cuidados de Apoio a Recém-nascidos Em Risco), a European Union funded project whose main objective was to improve the experience of care for premature infants and their parents in the neonatal intensive care unit (NICU) in Portugal. This national, multi-pronged project included prematurity prevention and awareness campaigns, NICU parent training and parenting skills building workshops, NICU parent–clinician partnerships as well as the development and implementation of specialized pilot projects focused on integrating, standardizing, and sustaining developmentally supportive care principles and practices in neonatal intensive care units across the country. The Sobreviver (translated: survive) pilot project focused on standardizing the practice of kangaroo mother care (KMC) in three NICUs in Portugal.

The 2014 Cochrane Review on KMC concluded that when compared to conventional neonatal care, KMC was found to reduce overall mortality, decrease the incidence of severe infections as well as nosocomial infection, decrease hypothermia, severe illness, lower respiratory tract disease, and the length of hospital stay.¹ In addition, kangaroo care was associated with increased weight gain, head circumference and length.¹ A 2015 randomized controlled trial by Filho et al.² suggests that skin-to-skin care might be an effective and safe method for promoting decolonization of small for gestational age newborns nostrils colonized by methicillin resistant *Staphylococcus aureus* (MRSA)/methicillin resistant *Staphylococcus epidermidis* (MRSE) ($p = 0.007$). Korraa et al.³ demonstrated that kangaroo mother care improves cerebral blood flow in preterm infants ($p < 0.05$) and Johnston et al.⁴ concluded that skin-to-skin care is safe and effective in managing procedural pain in neonates.

Despite the ever growing body of evidence highlighting the benefits and safety of kangaroo care in the neonatal intensive care unit there remains a high degree of variability and inconsistency in practice, not only

between NICUs but also within the same NICU. Several factors have been implicated in this inconsistency to include: (1) a lack of clear practice guidelines to include eligibility criteria, (2) insufficient competency based education and performance expectations of staff and parents, (4) a paucity of consistent documentation criteria, and (5) a dearth of individual and systems accountability for the provision of evidence-based practice.

Facilitating practice change for quality improvement requires a thoughtful and systematic approach. In most instances, clinicians are not opposed to the adoption of evidence-based best practice but struggle with how to integrate the practice consistently, reliably and safely into an already busy workflow. That being said, nurses' attitudes about skin-to-skin care play an intangible but key role in promoting and facilitating kangaroo care experiences in the NICU.⁵ A meta-ethnography from Vittner et al.⁶ looking at skin-to-skin holding from the clinician's perspective highlights the clinician's real-time challenges in the provision of kangaroo mother care. The varying thresholds for initiation of skin-to-skin care combined with the availability of adequate or appropriate resources and further complicated by workflow challenges, patient acuity and parental readiness converge to create this chaos and inconsistency.

The primary aim of this pilot project was to increase the frequency of kangaroo care experiences in three tertiary care neonatal intensive care units in Portugal (Centro Materno-Infantil do Norte do Centro Hospitalar do Porto [CMIN-CHP], Hospital de Sao Francisco Xavier [HSFX], Lisbon and Maternidade Dr. Alfredo da Costa [MAC], Lisbon).

Budget/Resources

Funds from the C.A.R.E. project supported the education, training, coaching and project management for the Sobreviver pilot evaluation. Nurtured by Design™ (a U.S. based company who manufactures positioning supports for the NICU patient population) donated 50 Kangaroo Zaks™, an innovative device ergonomically designed to facilitate safe, prolonged, and effective kangaroo mother care sessions in the NICU and the post-partum ward. These devices were distributed between the three NICUs to standardize the practice and process for kangaroo

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Table 1
Sample failure modes and effects analysis (FMEA) table.

Process step	Potential failure mode	Potential failure effect	Severity (1–10)	Potential causes	Occurrence (1–10)	Current process controls	Detection (1–10)	Risk priority score	Action plan
What is the step?	In what way can the step go wrong	What is the impact to the patient if failure mode is not corrected?	How severe is the effect to the patient (higher # = higher effect)	What causes the step to go wrong?	How frequently does this happen? (higher # = higher frequency)	What are the existing controls to prevent/detect the failure mode?	How probable is the detection? (higher # = higher detection rate)	Calculated as severity × occurrence × detection (higher # = higher priority)	What actions steps will be taken to resolve failures?
Identifying which infants can safely participate in SSC	No guidelines	Infants who may be eligible are denied access to this EBP	10	No guidelines	10	None	10	1000	Develop a practice guideline with eligibility criteria. Review eligibility criteria daily with each infant–parent dyad and healthcare team

mother care during the pilot project. The availability of safe and comfortable seating to facilitate the kangaroo mother care experiences was variable within and between each unit and was identified as a limiting factor in promoting kangaroo mother care, however the safety features of the Kangaroo Zak™ appeared to mitigate some of these concerns.

Methodology

An initial failure modes and effects analysis (FMEA) was performed (Table 1).⁷ The selected process for evaluation was the current kangaroo mother care practice at each site. A multidisciplinary team was recruited at each site to review their current practice and identify failure modes that undermined the standardization of kangaroo mother care practice in their unit and prioritize each failure mode. Once completed, each team then outlined an improvement action plan in collaboration with the consultant and, using the Plan-Do-Study-Act (P-D-S-A) methodology, began the practice improvement work.

Benchmark data were collected regarding staff and parent's knowledge, perceptions, and experience with kangaroo mother care. Staff and parents were re-surveyed at three and six months following the project start date. In addition, documentation frequency and quality were benchmarked and trended over the project period.

Intervention

The identified failure modes included a lack of knowledge, skill and confidence for both staff and parents in the provision of safe and reliable skin-to-skin or KMC care as well as poorly defined practice guidelines and documentation criteria. The initial intervention focused on addressing the perceived knowledge gap. All direct caregivers attended a 4-hour interactive learning session presenting the neurobiological and psychosocio-emotional needs of the developing human framed by the current research on the effects of traumatic stress and early life adversity. Kangaroo mother care represented the comprehensive evidence-based best practice in meeting the needs of the hospitalized infant and operationalizing a trauma-informed approach to care in the NICU.⁸

Following the education intervention, the consultant met with each unit's project champion team. Each unit was given the autonomy to select champion team members and consequently team composition varied between the three units. The overarching objectives for each unit were established: (a) develop a kangaroo mother care or skin-to-skin practice guideline with clear eligibility criteria, (b) establish a clinician competency for the seated and standing infant transfer for kangaroo mother care (emphasizing the benefits of the standing transfer over the seated transfer for the infants physiologic stability), (c) establish and implement a process for educating NICU parents on the benefits of kangaroo mother care as well as including a return demonstration competency for each parent with the infant transfer, and finally, (d) standardize the documentation for kangaroo mother care

experiences to include a start and stop time for each kangaroo mother care session.

Practice Guideline Development

Each champion team and unit leadership were given samples of kangaroo mother care practice guidelines, policies, and protocols (for both intubated and non-intubated infants) as well as several key review articles to support and guide each team's development of a kangaroo mother care practice guideline with eligibility criteria that reflected an evidence-based framework (Fig. 1).^{9–11}

The implementation of the new practice guideline coincided with each unit's successful completion of staff and parent competency based training with the infant transfer as well as drafting a documentation strategy. All staff at each facility were educated on the practice guideline as part of the competency based education.

Competency Based Education

A competency checklist was developed for both staff and parents (all teaching materials were translated into Portuguese and all teaching sessions for parents were taught in Portuguese; staff education was a combination of English and Portuguese with translations as necessary). Both staff and parents were required to do a return demonstration of a mockup infant transfer using both the seated and standing transfer



Fig. 1. Evidence based practice model.

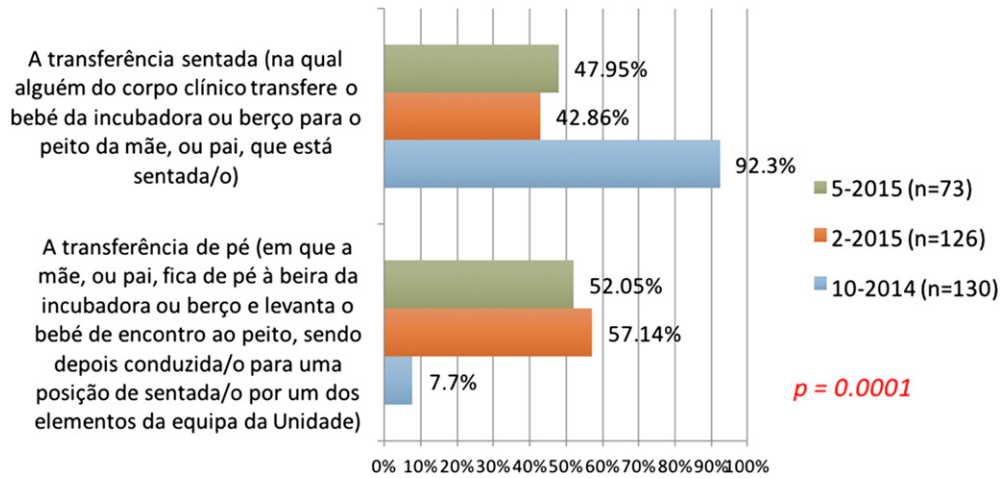


Fig. 2. Infant transfer method (sentada = seated; pe = standing).

methods. The Kangaroo Zak™ device was part of the competency and facilitated an overwhelming acknowledgment and general adoption of the standing transfer as the preferred transfer method following the competency training ($p = 0.0001$) (Figs. 2–4).

Documentation Criteria

The staff education sessions emphasized a dose-dependent effect of kangaroo mother care on the infant–parent dyad. This information facilitated a better understanding of the documentation criteria for kangaroo mother care. Each unit transitioned from a simple check mark style of documentation to a more complete record of the kangaroo mother care session. Two of the units utilize electronic documentation which integrates the International Classification for Nursing Practice (ICNP®) while the other unit uses a paper documentation system (with a plan to transition to electronic documentation within the next 12 months). All three units were able to integrate the minimum documentation requirements (start and stop times for each kangaroo mother care session). In addition to recording each kangaroo care session, each unit integrated a ‘standing order’ for convalescing infants to participate in kangaroo mother care and for infants who continued to require

intensive care, their eligibility was discussed daily on rounds and a kangaroo sticker was affixed to the incubator as an infant was deemed eligible to experience kangaroo mother care.

Results

Staff and parent surveys regarding kangaroo mother care knowledge, practice, and experience were collected at three distinct time points: at baseline (September 2014), three months (February 2015) and six months (May 2015) following the education and process interventions. Statistical analysis was completed at the unit and project level for both staff and parent surveys. Survey results demonstrated a statistically significant improvement in practice, knowledge, and competence over the pilot project period (Fig. 5).

The statistical significance of the staff survey outcomes reflects the importance of integrating a systematic approach to practice improvement. The staff survey responses revealed a solid baseline staff knowledge on the benefits of kangaroo mother care however, this knowledge did not seem to impact practice (which was quantified by the frequency in which kangaroo mother care sessions were documented in the medical record at baseline). However, when reviewing staff responses regarding



Fig. 3. Mockup for the infant transfer.



Fig. 4. Parent participating in the kangaroo care competency based training session.



Fig. 5. Kangaroo care.

obstacles to providing kangaroo mother care, it becomes clear that practice was significantly impacted when each unit developed a protocol for kangaroo mother care with clear eligibility criteria (Fig. 6).

In addition, integrating a competency for the infant transfer also contributed to the increase frequency of kangaroo mother care experiences. As staff gained confidence and competence in the infant transfer there was a significant increase in the frequency of kangaroo mother care

sessions documented and also parent perceptions of an increase frequency in their experience of kangaroo mother care (Figs. 7 and 8).

An interesting and exciting improvement was the increase in kangaroo mother care experiences with the infant's father. Sharing this crucial parenting activity with both mothers and fathers validates parental role identity and increases confidence and competence in parenting (Fig. 9).

Parent survey results indicate that the staff at each facility had significantly improved their practices and processes to educate parents about kangaroo mother care. This was achieved in partnership with the XXS organization (the national neonatal parent organization of Portugal) who provided local former NICU parents to partner with the NICU staff in designing and presenting the parent education sessions. In addition, XXS provided parent education pamphlets that highlight the benefits of kangaroo mother care in the NICU. Ensuring that all parents are well informed about the evidence-based benefits of kangaroo mother care empowers the parent to advocate for these experiences with their infants during their NICU stay (Fig. 10).

Documentation has improved significantly at each site and two of the three units are now utilizing kangaroo mother care as a non-pharmacologic intervention for certain medical procedures and are monitoring and measuring the impact of this evidence-based intervention.

Implications for Practice

Education and knowledge about evidence-based practice is not enough to ensure adoption — process is critical, but so is buy-in and engagement. There were varying degrees of active support and willing participation in this pilot project from physicians and nursing leadership. This is of significant concern when setting expectations for sustainability of the practice improvements made during the pilot period. In

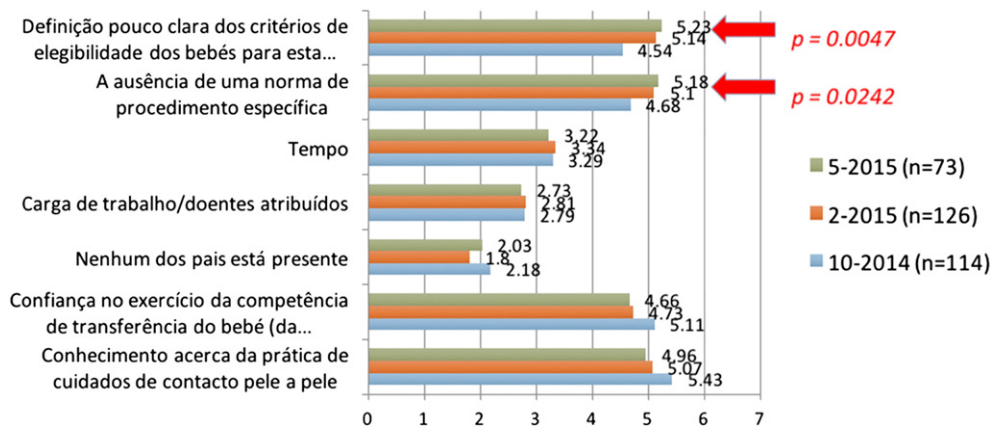


Fig. 6. Obstacles to providing kangaroo care (the lower the number = major barrier to practice).

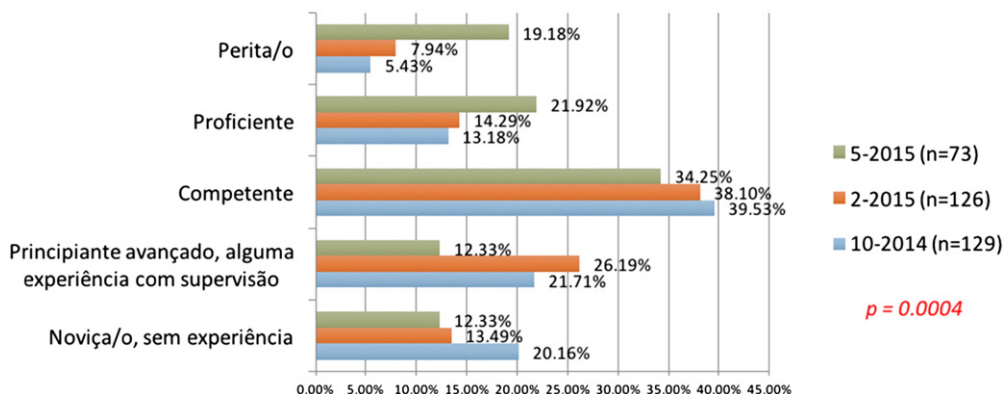


Fig. 7. Staff confidence.

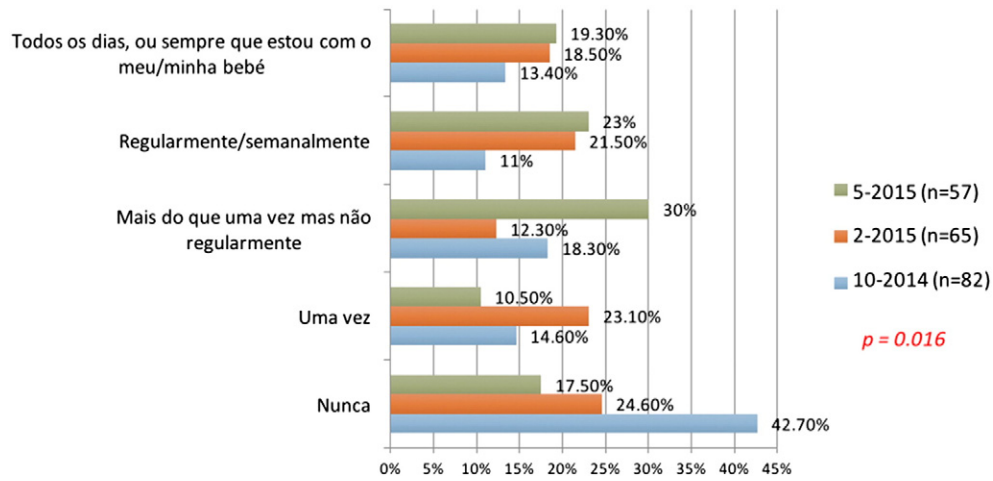


Fig. 8. How many times parents were provided kangaroo care experiences (Nunca = never; todos os dias = always).

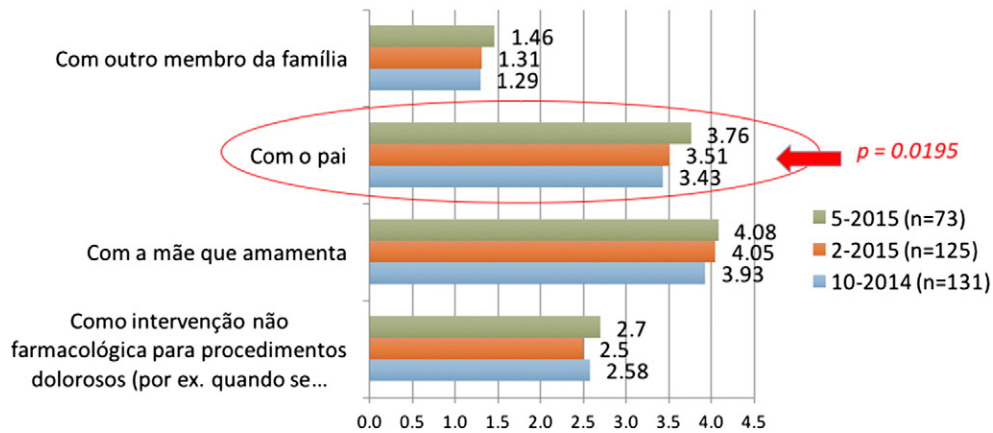


Fig. 9. Frequency that kangaroo mother care was facilitated.

addition, staff must be engaged and empowered to express concerns around safety and competence and explore solutions that will bring consensus for the practice improvement initiative.

Change is requisite for improvement and requires an ongoing commitment to excellence, a commitment to caring consistently and reliably!

“Unless someone like you cares a whole awful lot, nothing is going to get better. It’s not.” – Dr. Seuss

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Fig. 10. Parent and clinician partners.