

Developing and Implementing Kangaroo Care Practice in the NICU

UMass Memorial NICU, Worcester MA

L. Miller DO, M. Whalen NNP, P. Beaver NNP, J. Dodd NNP, C. Killoran RN, P. Barbas RN, D. McCorison RN, J. McQuade RN, K. Polselli RN, L. Silvia RN, C. Sullivan RN, M. Tivnan RN, K. Wikowski RN, G. Trachimowicz MD

Keywords: kangaroo care, skin to skin care, kangaroo care protocol, kangaroo care criteria, kangaroo-a-thon.

Background: Kangaroo care (KC) in the NICU has been shown to decrease procedural pain¹, improve temperature control and improve weight gain². It has also been shown to increase mother's breast milk production and improve mother's confidence in ability to provide breast milk for their infant³. It has also been shown to improve neurodevelopmental outcomes and change future parenting practices⁴. Prior to the start of this project, families in our NICU practiced kangaroo care; however, there was no standardization across the unit for which infants qualified for KC. This led to inconsistencies in frequency of KC across the unit. In an effort to increase the number of infants receiving KC, and to standardize practice, a kangaroo taskforce was created.

Aim: Develop a standardized protocol to determine eligibility for kangaroo care, improve nursing and parental awareness of KC and have 200 hours of KC time during our first Kangaroo-a-Thon in May 2015. A 6 month follow up survey is planned to assess retention of knowledge about the implemented KC protocol and increased comfort with KC.

Setting: A level 3 Neonatal ICU at UMass Memorial in Worcester Massachusetts.

Mechanisms/Drivers for Change: Drivers to increase KC include improved temperature control, weight gain, increased milk production and improved neurologic outcomes. Barriers identified include: fear of dislodging lines/ETT, noise levels in NICU, concerns of over infant acuity/tolerating KC, time involvement for nursing.

Methods: 1) The taskforce reviewed protocols used by other NICU's, while taking into consideration the results of the nursing survey, and developed a Kangaroo Care Eligibility Criteria (*see attached*). 2) To increase the frequency of KC and improve awareness of the goal, we participated in a world-wide competition organized by Sunnybrook Hospital and held our first ever Kangaroo-A-Thon in May 2015. 3) Staff was educated via bulletin boards providing education about KC, our new eligibility criteria, results of our nursing survey and advertising our upcoming Kangaroo-A-Thon. An educational binder was also provided for the nursing staff. An online quiz was distributed to staff based on the information provided by the bulletin boards/binder. An educational pamphlet was provided to parents. 4) As the Kangaroo-A-Thon approached, it was advertised in public and staffing areas of the NICU. Each family received a folder with information about the event. 5) For each hour of KC, parents and their nurses were given a raffle ticket for a weekly prize and a kangaroo cutout was placed at the NICU entrance.

Measures: Prior to implementation of a KC protocol and Kangaroo-A-Thon, 81/125 (65%) completed a survey identifying barriers. A follow up nursing survey is planned to determine changes in impressions related to KC after the implementation of the protocol and after the Kangaroo-A-Thon. Stickers were placed on each infant's care plan in order for nurses to record the date of infant's first KC with either parent. During the Kangaroo-A-Thon, the number of hours each infant was kangarooed was tracked via raffle tickets that were distributed.

Data: In the nursing survey (*see attached*), when asked about respiratory support, 99% of our nurses felt comfortable assisting with KC when an infant was on the conventional ventilator, but only 31% felt comfortable with KC when the infant was on the HFOV. In terms of vascular access, 99% of nurses would assist with KC with a PICC in place, 79% with a UVC, 72% with a PAL and 49% with a UAC. Ninety four percent of nurses said that infants of all gestational ages should qualify for KC, 6% felt that only infants >28 wks should qualify. During our two week Kangaroo-A-Thon, there were 472 hours of kangaroo care in the NICU, exceeding our goal of 200 hours. Now that the protocol is in place and the Kangaroo-A-Thon has taken place, we will have a follow up nursing survey to determine if there have been changes how KC is viewed in the NICU.

Discussion: Our first Kangaroo-A-Thon was a success in terms of exceeding our goal for number of KC hours. Our follow up nursing survey will be done to determine how the KC protocol and Kangaroo-A-Thon may have changed viewpoints on which infants are eligible for KC. We are currently working to find the best practice to collect data on the number of days to first Kangaroo.

Team Acknowledgement: Thank you to everyone involved and their incredible teamwork: NICU staff and families, respiratory therapists, child life and the family advisory committee

¹ Johnston C, Stevens B, Pinelli J, et al. Kangaroo Care Is Effective in Diminishing Pain Response in Preterm Neonates. *Arch Pediatr Adolesc Med*. 2003;157(11):1084-1088. doi:10.1001/archpedi.157.11.1084.

² Hall, D., and G. Kirsten. "Kangaroo mother care—a review." *Transfusion Medicine* 18.2 (2008): 77-82.

³ Hurst, Nancy M., and Leanne Rehiro. "Skin-to-Skin Holdin in the Neonatal Intensive Care Unit Influences Moternu Milk Volume." *Group* 1.31163 (1997): 0-22.

⁴ Feldman, Ruth, et al. "Comparison of skin-to-skin (kangaroo) and traditional care: parenting outcomes and preterm infant development." *Pediatrics* 110.1 (2002): 16-26.

Eligibility Criteria

1. **All neonates are eligible.**

2. **Ineligible/Exempt infants include those:**
 1. Any infant requiring >2 phototherapy units
 2. Any ELBW <5 days of age*
 3. Any infant on a HFOV
 4. Any infant with a chest tube
 5. Any infant with a UAC*
 6. Any infant receiving hypothermia, EEG monitoring or iNO
 7. Any infant receiving ionotropic support*
 8. Any infant who has had recent surgery – until approval from Surgeon

3. **All neonatal lines and tubes must be well secured.**

4. **Mothers and fathers should be willing to give KC for at least 1 hour.**

**Maybe eligible with physician approval*

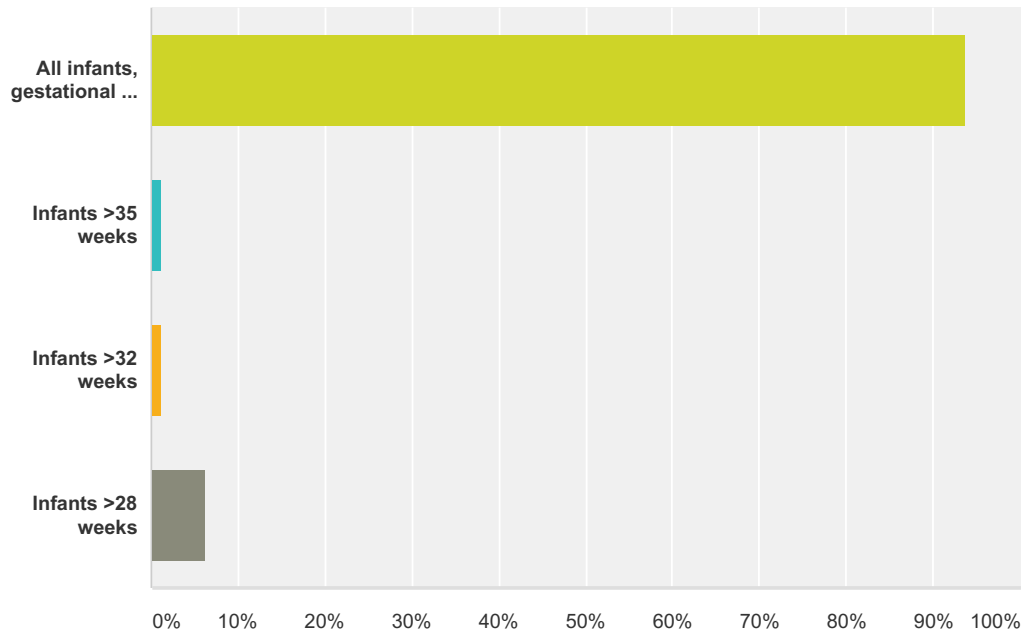
Criteria for Returning Infant to the Isolettes

1. Increased O₂ requirement of 10-20%
2. Infant shows signs of distress i.e. apnea/ bradycardia/ desaturation/ color change, despite providing stimulation
3. Hypothermia
4. Baby remains unsettled and distressed.



Q1 GESTATIONAL AGE: In your opinion, which infants are eligible for kangaroo care with parents:

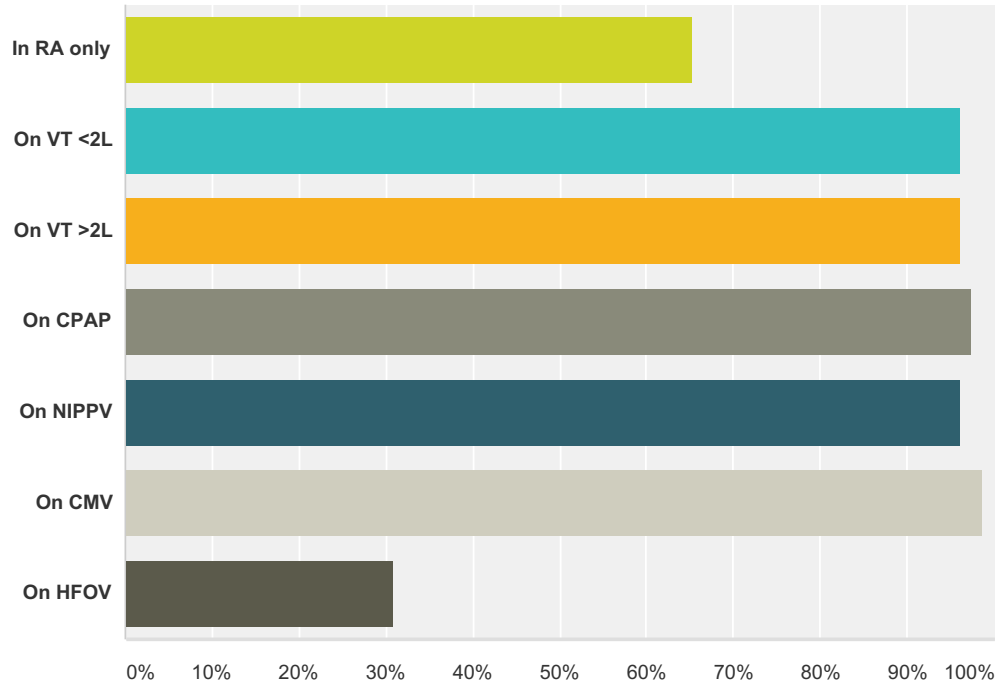
Answered: 81 Skipped: 0



Answer Choices	Responses
All infants, gestational age doesn't matter	93.83% 76
Infants >35 weeks	1.23% 1
Infants >32 weeks	1.23% 1
Infants >28 weeks	6.17% 5
Total Respondents: 81	

Q2 RESPIRATORY: In your opinion, which infants are eligible for kangaroo care with parents

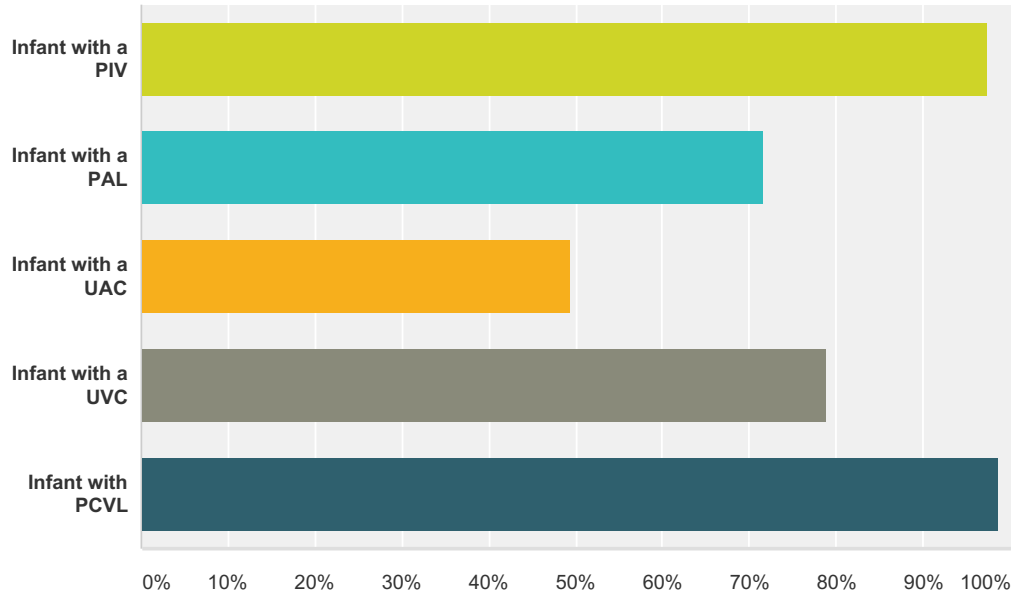
Answered: 81 Skipped: 0



Answer Choices	Responses	Count
In RA only	65.43%	53
On VT <2L	96.30%	78
On VT >2L	96.30%	78
On CPAP	97.53%	79
On NIPPV	96.30%	78
On CMV	98.77%	80
On HFOV	30.86%	25
Total Respondents: 81		

Q3 IV ACCESS: In your opinion, which infants are eligible for kangaroo care with parents

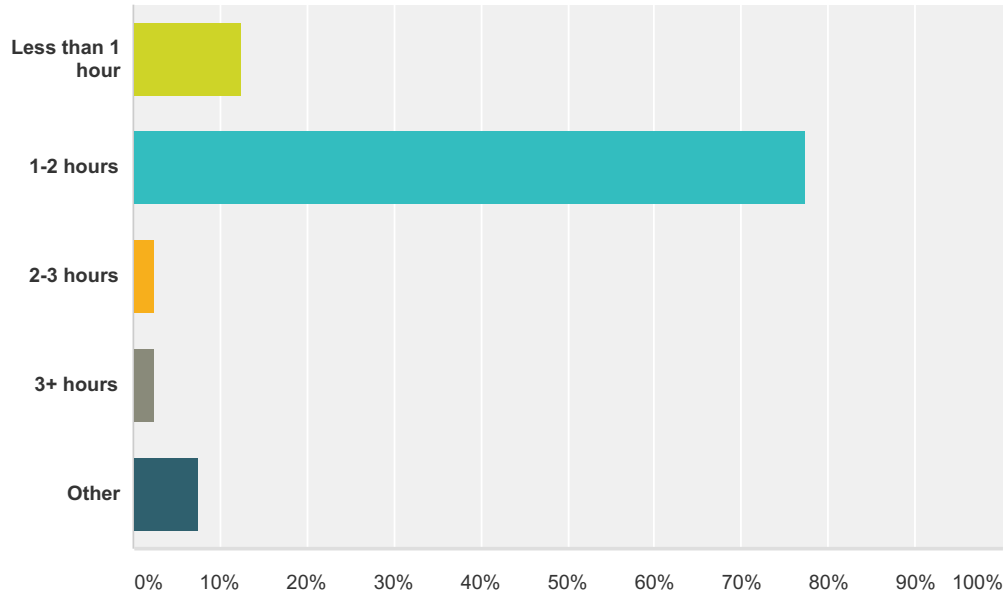
Answered: 81 Skipped: 0



Answer Choices	Responses
Infant with a PIV	97.53% 79
Infant with a PAL	71.60% 58
Infant with a UAC	49.38% 40
Infant with a UVC	79.01% 64
Infant with PCVL	98.77% 80
Total Respondents: 81	

Q4 DURATION: The MINIMUM number of hours that a parent should hold an infant in one sitting is

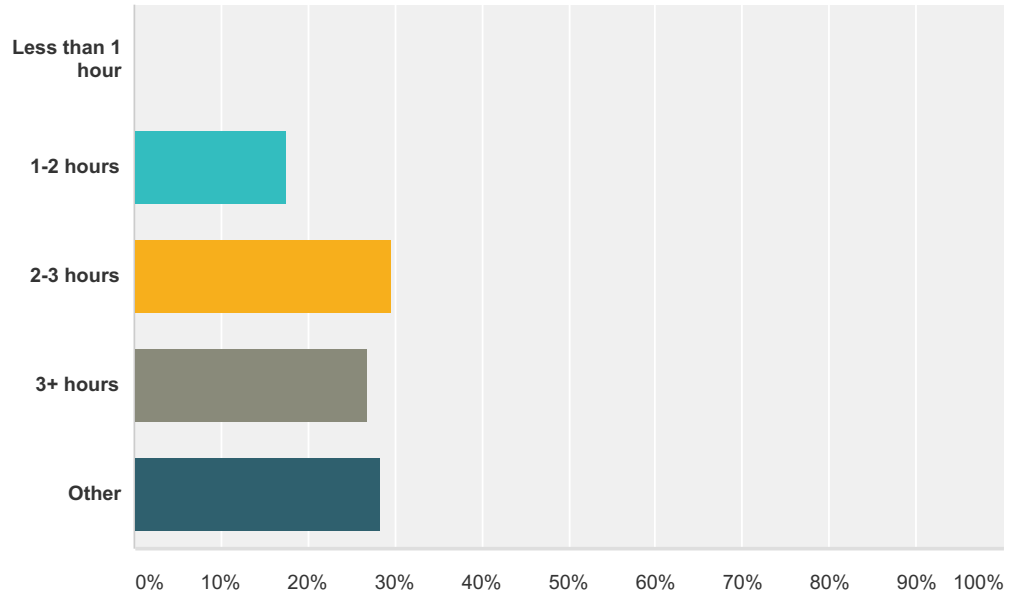
Answered: 80 Skipped: 1



Answer Choices	Responses
Less than 1 hour	12.50% 10
1-2 hours	77.50% 62
2-3 hours	2.50% 2
3+ hours	2.50% 2
Other	7.50% 6
Total Respondents: 80	

Q5 DURATION: The MAXIMUM number of hours that a parent should hold an infant in one sitting is

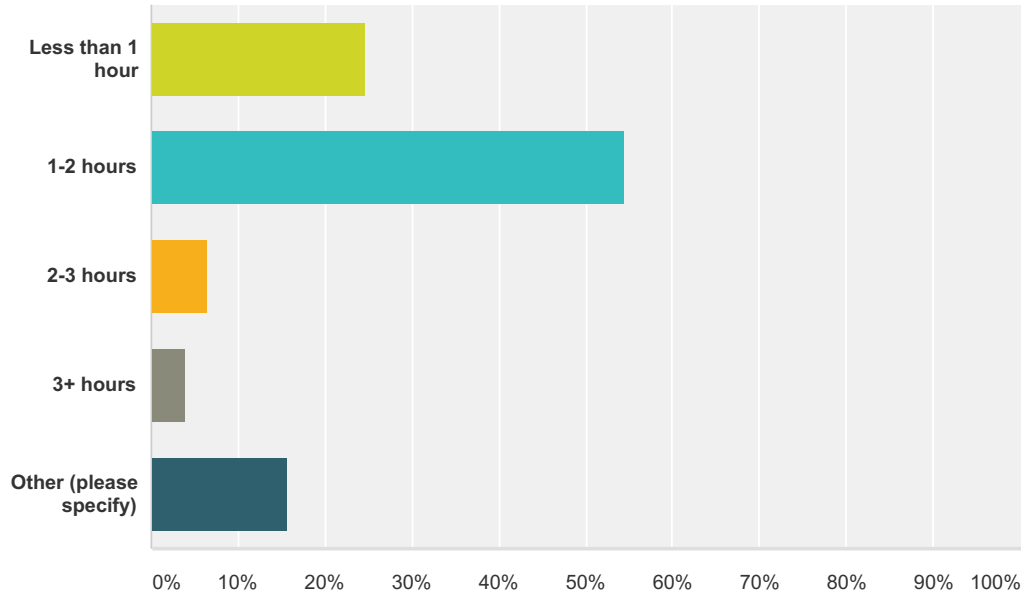
Answered: 74 Skipped: 7



Answer Choices	Responses
Less than 1 hour	0.00% 0
1-2 hours	17.57% 13
2-3 hours	29.73% 22
3+ hours	27.03% 20
Other	28.38% 21
Total Respondents: 74	

Q6 DURATION: The MINIMUM number of hours that a parent should hold an infant with NAS in one sitting is

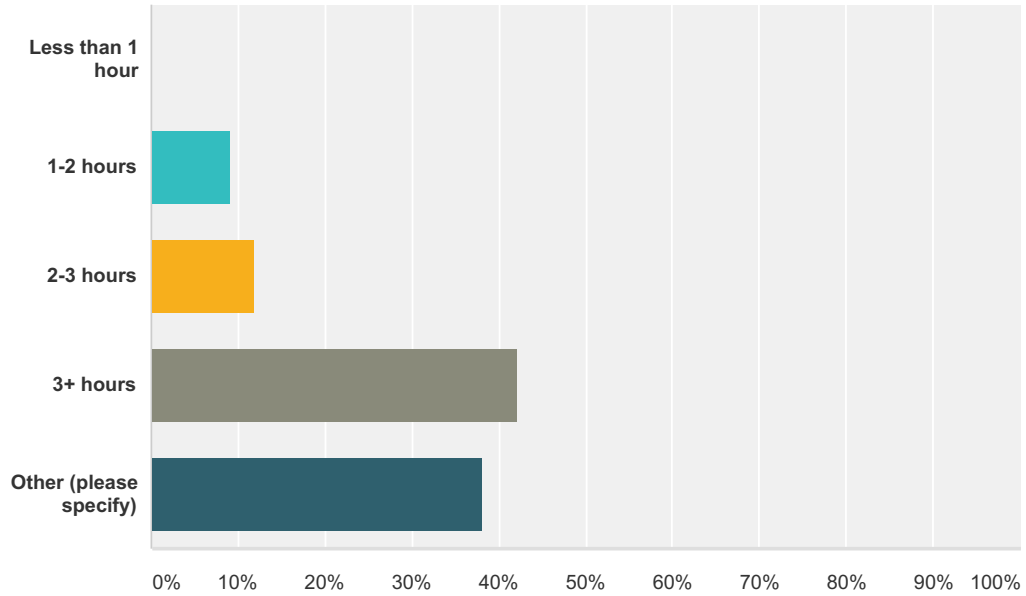
Answered: 77 Skipped: 4



Answer Choices	Responses
Less than 1 hour	24.68% 19
1-2 hours	54.55% 42
2-3 hours	6.49% 5
3+ hours	3.90% 3
Other (please specify)	15.58% 12
Total Respondents: 77	

Q7 DURATION: The MAXIMUM number of hours that a parent should hold an infant with NAS in one sitting is

Answered: 76 Skipped: 5



Answer Choices	Responses
Less than 1 hour	0.00% 0
1-2 hours	9.21% 7
2-3 hours	11.84% 9
3+ hours	42.11% 32
Other (please specify)	38.16% 29
Total Respondents: 76	

Q8 In your opinion, what is the biggest barrier to kangeroo care in our unit

Answered: 73 Skipped: 8