FROM RISK TO REFORM: REMOVING BARRIERS TO SAFER SKIN-TO-SKIN (KANGAROO) CARE

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J Obstet Gynecol Neonatal Nurs. 2022 May; 51(3): 336–348. PMID: 35288109
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Application of a Risk Management Framework to Parent Sleep during Skin-to-Skin Care in the NICU

Ashley M. Weber, Yamile C Jackson, Mason R. Elder, Sarah L. Remer, Nehal A. Parikh, Jennifer J. Hofherr, Kristin C. Voos, and Heather C. Kaplan

ASHLEY WEBER, PHD, RN, RNC-NIC

Nurse Scientist
NICU Nurse (Level IV NICU)
Mom of Emmet
Kangaroo care is the best part of my job!

43. Weber AM, Jackson YC, Elder MR, et al. Application of a Risk Management Framework to Parent Sleep During Skin-to-Skin Care in the NICU. J Obstet Gynecol Neonatal Nurs JOGNN. 2022;51(3):336-348. doi:10.1016/j.jogn.2022.02.004
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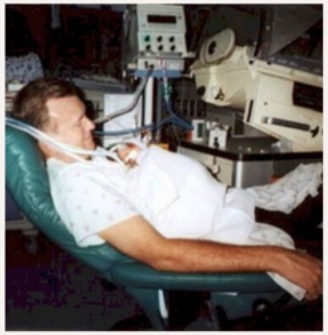
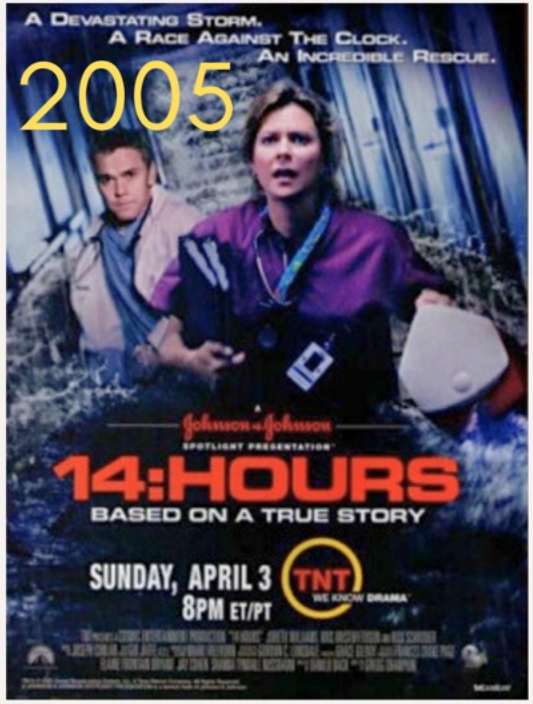
MY STORY AND INSPIRATION

I didn't set out to create a movement around kangaroo care. I set out to save my son.





YAMILE JACKSON, PHD, PE, PMP

Zach's mom

- How does Zach know that I love him?
- Touch - Can I prevent a life of isolation?
- How do I calm him so he can **sleep** and feel less pain?
- ***My promise to Zach that his pain and struggle to survive were not in vain***

Engineers Are Problem Solvers

I experienced the problem.

I researched the problem.

I still have a promise to keep.

And was the engineer in the best position to solve it—before it was considered a problem.

I WANTED TO UNDERSTAND THE ROADBLOCKS TO IMPLEMENTING SAFE AND SUSTAINABLE KANGAROO CARE AND I IDENTIFIED THREE CRITICAL GAPS:

The problem wasn't lack of evidence—
it was the lack of systems to make Kangaroo Care known, safe, consistent, and measurable.

Insufficient Education and Awareness

- Not taught in most clinical or academic curriculums
- Not routinely offered or prioritized
- Uncertainty at the bedside: "If parents ask, they can do it..."

My Contribution:
Founded Kangaroo Care Day (May 15, 2011)
www.kangaroo.care

Lack of Safety and Infrastructure

- Understand why "It's more work for me, the nurse"
- The solution isn't to shorten sessions—it's to support longer ones.
- Parents are falling asleep - nobody likes to wake them up.

Our Contribution:
Research, risk mgmt, training, ergonomics and safety-engineered tools (ongoing)

Lack of Metrics and Analysis

- Without tracking frequency and duration per baby and per team, progress can't be measured
- What's not measured can feel optional or unimportant

My Contribution:
App funded by a grant from the Gates Foundation (2024)

- Fluharty M, Nemeth LS, Logan A, Nichols M. What Do Neonatal Intensive Care Unit Policies Tell Us About Kangaroo Care implementation? A Realist Review. Adv Neonatal Care Off J Natl Assoc Neonatal Nurses. 2021;21(4):E76-E85. doi:10.1097/ANC.0000000000000808
- 44. Chan GJ, Labar AS, Wall S, Atun R. Kangaroo mother care: a systematic review of barriers and enablers. Bull World Health Organ. 2016;94(2):130-141J. doi:10.2471/BLT.15.157818
- 45. Smith ER, Bergelson I, Constantian S, Valsangkar B, Chan GJ. Barriers and enablers of health system adoption of kangaroo mother care: a systematic review of caregiver perspectives. BMC Pediatr. 2017;17(1):35. doi:10.1186/s12887-016-0769-5
- 46. Hull WL, Gongora P. Implementing Early Kangaroo Mother Care: A Quality Improvement Initiative. Adv Neonatal Care Off J Natl Assoc Neonatal Nurses. 2025;25(1):46-54. doi:10.1097/ANC.0000000000001231
- 47. Beaumont L, Mullaney D, Eklund W, DeGrazia M. Kangaroo Care in the Neonatal Intensive Care Unit-A Practice Change Initiative. Adv Neonatal Care Off J Natl Assoc Neonatal Nurses. 2025;25(2):129-137. doi:10.1097/ANC.0000000000001252

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TODAY'S TALK

Our Contribution:
Research, risk mgmt, training, ergonomics and safety-engineered tools (ongoing)

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- What's not measured can [illegible] optional or unimportant

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ABOUT THIS TALK

❌ This Talk Is Not About...

- Criticizing your current practice or how your team responds to risks
- Suggesting you to change your hospital's policy or clinical protocols
- Judging your implementation efforts or progress

✅ This Talk Is About...

- Sharing the work we've done to create a safe experience—even if the parent falls asleep during KC
- Bringing both the parent and professional perspectives—grounded in research and lived experience
- Empowering you to decide next steps—once safety is ensured, connection can truly thrive

SKIN-TO-SKIN (KANGAROO) CARE: DEFINITION AND BENEFITS

Definition:
Direct, upright contact of the infant—wearing only a diaper—on the parent's bare chest (USIKC).

Benefits include:

- Reduces mortality and both short and long-term morbidities
- Promotes brain development, physiological stability, and emotional bonding
- Positive effects have been shown to last well into adulthood—over 20 years
- Improved breastfeeding and mental health for infants and parents
- Early Discharge
- Breastfeeding Success: potential savings of $3 to $14+ per ounce of Donor Milk
- Non-Pharmacologic Care: Reduced mortality, morbidity, improved outcomes
- Lawson et al. (2015): $1 invested in KC returns $4.00–$13.82 in benefit https://pubmed.ncbi.nlm.nih.gov/26000029/

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THE PARENT GETS THE INSTRUCTIONS TO CONTROL THE SAFETY OF THE BABY, THE NURSE KEEPS THE RESPONSIBILITY: AN UNFAIR BURDEN FOR BOTH

"I will place the baby on your chest, please...

- Make sure the airway is unobstructed!
- Keep baby midline!
- Don't let the baby slip!
- Watch the PICC!
- Make sure the baby is warm and covered!
- You can't use your phone!
- Be sure to stay awake, etc., etc., etc.
- Do you have the OG secure?

Now....relax!

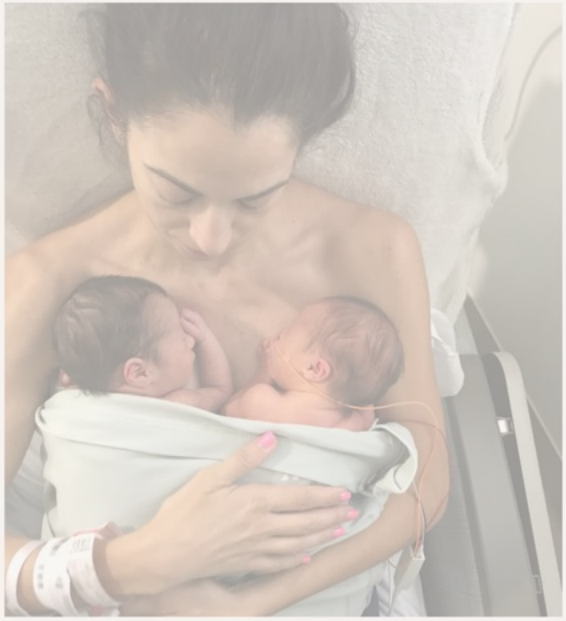
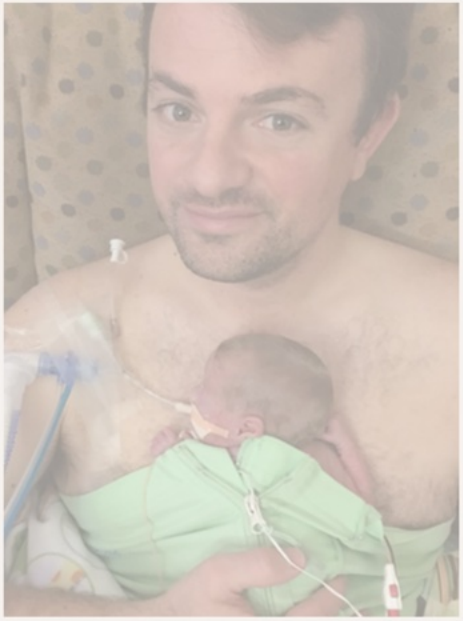
> Adv Neonatal Care. 2021 Jun 1;21(3):232-241. doi: 10.1097/ANC.0000000000000790.

A Survey of Neonatal Clinicians' Use, Needs, and Preferences for Kangaroo Care Devices

Ashley Weber [1], Yamile Jackson

LIKELY FATHER'S RESPONSE: "Let my wife do it"

IF THE NURSE DOES NOT FEEL COMFORTABLE ABOUT THE SAFETY OF THE BABY ("BE IN CONTROL") - DURING THE TRANSFER OR WHEN WALKING AWAY - YOUR KC PROGRAM WON'T ADVANCE

THE RISK INCREASES WITH DURATION— BUT SO CAN THE SAFETY

As Kangaroo Care sessions get longer, the likelihood of parental drowsiness or sleep increases —**with or without permission**—putting infants at risk of injury, falls, or line dislodgement. These are no longer unavoidable risks. They are predictable, preventable, and manageable—with the right systems, tools, and support.

But safety is not automatic—and it's not free.
It requires intentional investment in design, training, tools, and infrastructure and collaboration with the hospital's risk management/patient safety/prevention of patient falls. Don't do this alone.


Resting (by WHO)

World Health Organization (WHO) Recommendations for NICUs
8-24 hours per day of kangaroo care from birth (24 weeker and older)
Developmental Care Standards for Infants in Intensive Care (IFCDC)
European Standards of Care for Newborn Health

KMC is different from the routine skin-to-skin contact recommended for all newborns in the first hour after birth.
KMC refers to skin-to-skin contact that is:
- **for preterm or LBW infants, both well and sick**
- **continuous and prolonged (at least 8 hours per day)**

- World Health Organization. Kangaroo Mother Care: Implementation Strategy for Scale-up Adaptable to Different Country Contexts. World Health Organization; 2023. https://apps.who.int/iris/handle/10665/367625
- Phillips R, Smith K, First Consensus Conference on Standards, Competencies and Recommended Best Practices for Infant and Family-Centered Developmental Care in the Intensive Care Unit. IFCDC- Recommendations for Skin-to-Skin Contact with Intimate Family Members. NICU Recommended Standards. 2020. Accessed March 17, 2020. https://nicudesign.nd.edu/nicu-care-standards/ifcdc--recommendations-for-skin-to-skin-contact-with-intimate-family-members/
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Photos by: Louise Goosen, IBCLC
(Mowbray Maternity Hospital,
Cape Town)

WHAT FAILS WHEN A PARENT FALLS ASLEEP DURING KANGAROO CARE?

- Their hands no longer provide **safety or support** to the baby
  -
- Their **attention** shifts away from the baby

48. Weber AM, Jackson YC, Elder MR, et al. Application of a Risk Management Framework to Parent Sleep During Skin-to-Skin Care in the NICU. J Obstet Gynecol Neonatal Nurs JOGNN. 2022;51(3):336-348. doi:10.1016/j.jogn.2022.02.004
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IT'S NOT ONLY WHEN THEY FALL ASLEEP

The baby may be at risk even when the parent is awake, if:

- **The parent's hands no longer provide support.** (e.g., holding a phone, book, water bottle, or resting arms, etc.)
- **The parent's attention shifts away from the baby.** (e.g., multitasking, reading, watching a movie, daydreaming, or feeling overwhelmed, etc.)

Distraction is human. Risk is preventable.

WHY SLEEP DURING KANGAROO CARE ISN'T ALLOWED IN MANY NICUS –AND WHY THE CONCERN IS VERY REAL

- **Infant Fall/Drop:** Potentially $20-$100,000+ per incident, plus millions $ in litigation

Consequences: medical care, legal exposure, family distress, death, injury
Impact: kangaroo care suspension, mental health/guilt, and reputational risk

- **Injuries.** Each Unplanned Extubation: Potentially $50,000+

https://doi.org/10.1542/peds.2019-2819
Consequences: extended hospital stays,
emergency interventions, long-term complications
Impact: trauma, parent's "I had one job", kangaroo care suspension, litigation $$, reduced confidence in care

Observational Study > Pediatrics. 2020 Jun;145(6):e20192819. doi: 10.1542/peds.2019-2819. Epub 2020 May 6.

Outcomes, Resource Use, and Financial Costs of Unplanned Extubations in Preterm Infants

L Dupree Hatch 3rd [1 2 3], Theresa A Scott [4 2], James C Slaughter [5], Meng Xu [5], Andrew H Smith [6], Ann R Stark [7], Stephen W Patrick [4 2], E Wesley Ely [3 8 9]

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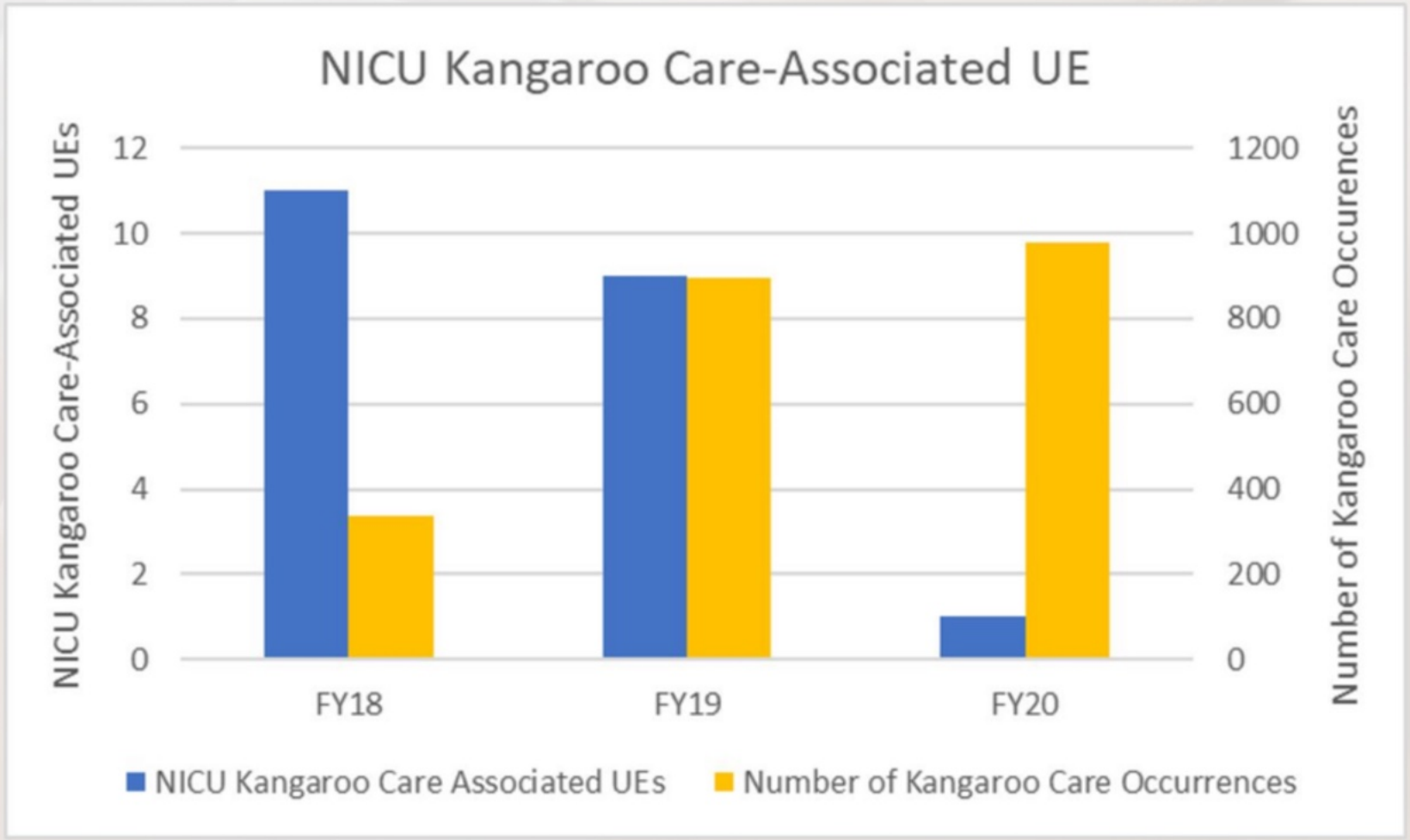

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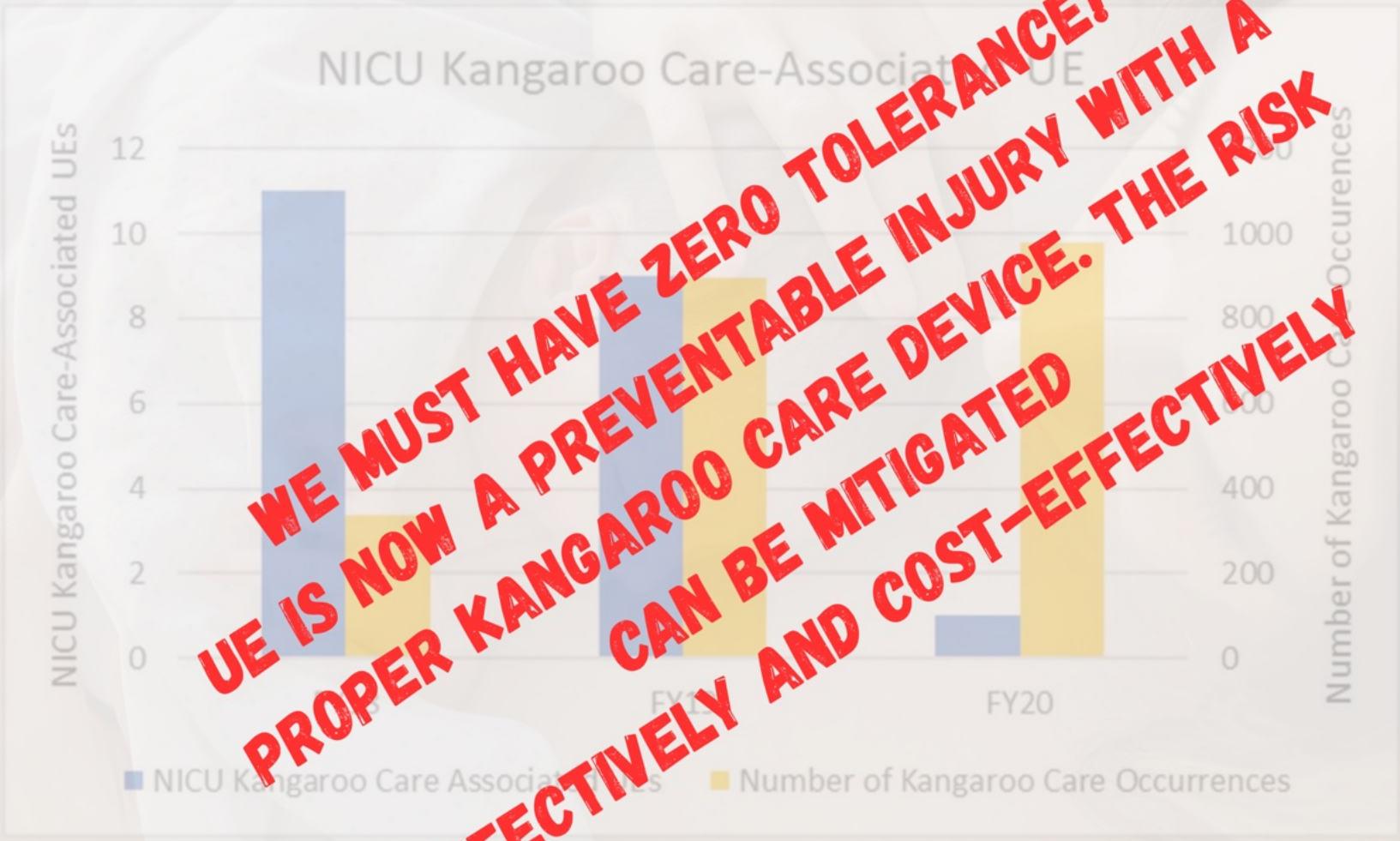

WE MUST HAVE ZERO TOLERANCE!
UE IS NOW A PREVENTABLE INJURY WITH A
PROPER KANGAROO CARE DEVICE. THE RISK
CAN BE MITIGATED
EFFECTIVELY AND COST-EFFECTIVELY

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I FELL ASLEEP HOLDING ZACH. WHY?

- **I was physically and emotionally exhausted.**
- Oxytocin was flowing—helping me relax and bond with him.
- We calmed each other when we were together.
- The monitors were quiet— Zach was stable.
- I was in a comfortable recliner, with a warm blanket.

I was told: "Relax and enjoy this time with your baby", and I did.

— and I knew I couldn't fall asleep, but I didn't notice.

The next thing I knew, I was waking up with Zach on my chest.

It was glorious. I STILL REMEMBER THAT FEELING 24 years later.

It was the best and only good sleep I had in five months. But in that same moment, I realized: **I had put my baby in danger.**

SHORT VS. LONG AIRPLANE RIDES: A USEFUL ANALOGY FOR KC SESSIONS

Safety must be secured by the professionals before takeoff

Short Ride/Short KC Session	Long Airplane Ride / Long KC Session
Minimal setup	Comfort and safety are best planned before the flight
Maybe not enough time to sleep or to watch a movie	Designed so you can rest or work, pillow, blanket, movies, games, headphones, music, read, wifi, free text
No drink or meal service	Meals, snacks, hydration, and support are built in
Use restroom before boarding	Movement is recommended - easy access to the seat and walk around - not lose the seat if you get up
Easy to stay alert and still	Encouraged to settle in and unwind, relax, even sleep (seatbelt while sitting)
Discomfort is tolerated—it's short	**Safety, comfort, and keeping the mind occupied ensures the flight feels shorter, not longer**

If you fall asleep, the plane will go down, now enjoy the flight!!

DEFINITION OF RISK:
EXPOSURE TO DANGER, HARM, OR LOSS
(WE MANAGE RISKS EVERY DAY)

- **Event** and a **consequence** (negative outcome) Positive outcome it is called "opportunity"
- Risk that is anticipated but is **not possible to know with certainty. Probability and impact**
- Unanticipated (CRISIS) - **UNNOWN UNKNOWNS**

(like the generators failing during Tropical Storm Allison in 2001)

*Any patient with an **Airway Alert** or with a **history of unplanned extubations** is automatically considered high-risk for repositioning, moving, and procedures

*Assess potential need for restraints, sedation, planned extubation, and/or change in ETT positioning before repositioning, moving and procedures

At-risk situations

For any positioning, moving, or procedures for patients with an ETT

- Requires 2 caregivers
- 1 of the caregivers must be a licensed clinician
- A licensed clinician is designated to oversee the airway/vent tubing
- During procedures, a licensed clinician should be present to monitor the airway/vent tubing

Examples:

- Routine position changes
- Early mobility- with stable head/ETT position

Procedure examples:

- During central line placement when the airway/vent tubing is not covered
- Non-chest x-rays

High-risk situations

For any positioning, moving, or procedures for patients with an ETT and at high-risk and/or with an Airway Alert

- Requires 2 licensed clinicians
- Highly recommended 1 be an RT
- 1 of the above is designated to oversee the airway/vent tubing
- During procedures, a licensed clinician should be present to monitor the airway/vent tubing, preferably an RT.

Examples:

- Code
- Arrival of a new intubated patien
- Kangaroo care
- Early mobility- when moving head/ETT

Procedure examples:

- Intubation, re-taping, ETT exchange
- Bag suction
- Bronchoscopy
- ROP eye exams
- Any procedures involving draping or significant manipulation of the head/airway/circuit (including central line placement)
- Chest x-rays

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RISK MANAGEMENT FRAMEWORK

Do this with each risk. This is an example of a single risk.

Example of risk: A parent unintentionally falls asleep during a kangaroo care session (event), **leading to** unplanned extubation (consequence)

1 Establish Context:

In our NICU, we want to increase kangaroo care for intubated babies but parents may fall asleep.

2 Risk Identification:

Parent falls asleep while holding **and** baby extubates

3 Risk Analysis:

Likelihood (Almost Certain), Impact (Major/Severe)

Risk Analysis Matrix

Impact if it happens	Probability of happening: Rare	Unlikely	Possible	Likely	Almost Certain
Severe	Medium	Medium	High	High	Extreme
Major	Low	Medium	High	High	Extreme
Moderate	Low	Medium	Medium	High	High
Minor	Low	Low	Low	Medium	Medium

4 Risk Response

(see next slide)

Select one:

- **Avoid** the risk
- **Accept** the consequences
- **Share** the risk
- **Control** the risk

5 Monitor/Adapt

Metrics on performance:

- Safety during parent sleep
- Accessibility for interventions

(Select one response for each risk to decrease the probability of happening or the impact, or both.
For this example risk, CONTROL is recommended)

(Step 4) Risk Response Options to Manage the Risk

1. Avoid

Eliminate the risk by **prohibiting KC or** when signs of parent fatigue are evident or by **stopping sessions** when the parent becomes drowsy, multitasking, or seems distracted.
Example: Ending KC immediately if a parent appears sleepy. While this reduces immediate risk, it also prevents the infant from receiving KC's full developmental benefits.

2. Accept

Take **no specific action** to lower the risk, beyond acknowledging it. Manage any adverse outcomes if they occur.
Example: Allow KC without lowering the risk, and re-intubate if there is an unplanned extubation. This risk response is not recommended in clinical safety context for this risk..

3. Share

Distribute responsibility for risk across stakeholders.
Example: Clinical teams, administrators, and families share accountability, but safety liability is not usually transferred to the patient. Not recommended because it is predictable that parents may fall asleep unintentionally. Hospitals may buy extra liability insurance for patient falls or injuries.

4. Control

Proactively mitigate risks with proven strategies
Examples: Reduce risk through investing in preventive measures, such as:

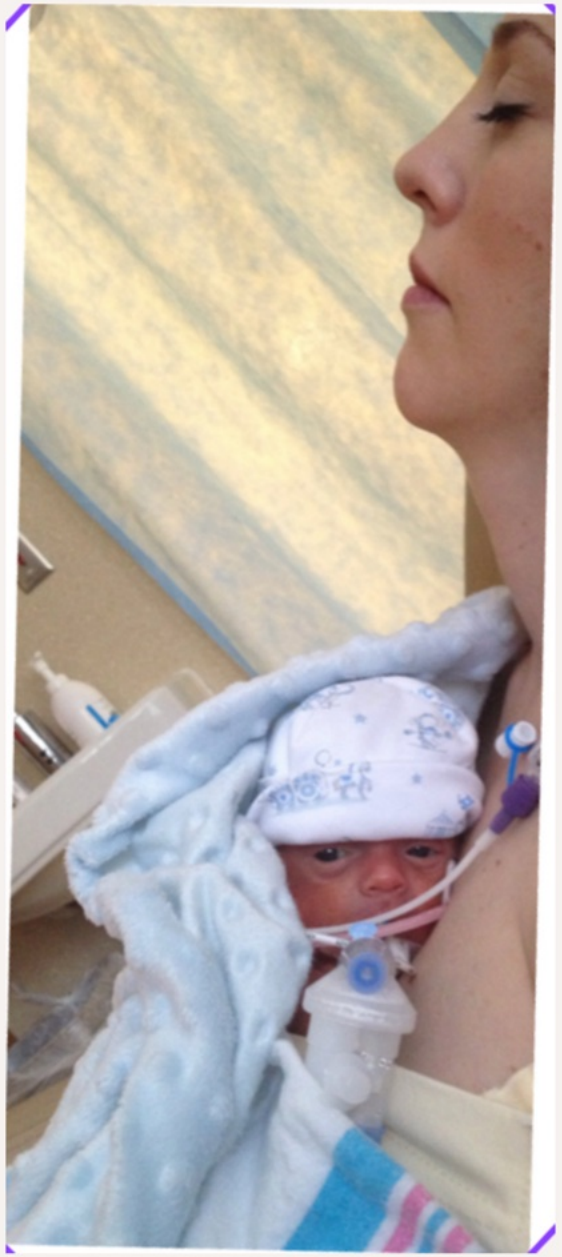
- *Evaluate and use a KC safety device/wrap.*
- *Staff and parent training and simulations,*
- *Protocol and policy evaluations,*
- *Ensure another adult supervises the session throughout kangaroo care.*

Falling asleep is not a failure—
not of the parent, and not of the staff.

Sleep is predictable—and it must be planned for, not punished.

Systems—not willpower—must protect the infant.

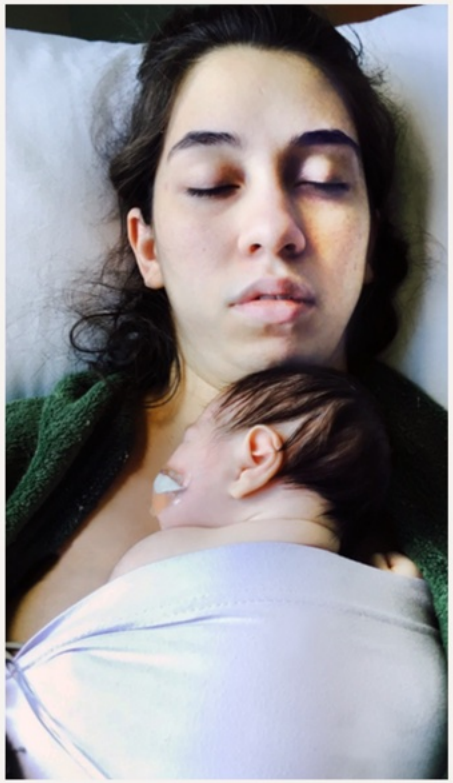
You know the risk, you know how to apply a risk-management framework.



MAIN PURPOSE OF A KANGAROO CARE SAFETY WRAP/DEVICE

TO SUPPORT THE WEIGHT AND POSITION OF THE BABY WITHOUT THE HANDS OF THE PARENT, AND GIVE IMMEDIATE ACCESS TO THE BABY DURING KANGAROO CARE.

ESPECIALLY IMPORTANT IF THE PARENT FALLS ASLEEP (WITH OR WITHOUT PERMISSION).
If not, it is like, "Wear the seat belt, but it won't protect you if you get in an accident."



Safety Check Before Leaving the Bedside

Are you confident that the parent, while fully reclined, could sit upright without using their hands — and the baby stays securely in place without sliding or shifting?

If the answer is no, the device is not providing adequate support for safe, "distraction-resistant" Kangaroo Care, and the risk needs to be evaluated before proceeding.

MAIN PURPOSE OF A KANGAROO CARE CHAIR

TO PROVIDE A SAFE AND COMFORTABLE PLACE TO SIT (AND RECLINE)

Sit on it and evaluate how you could make it more comfortable for the parent.

CONCLUSION AND RECOMMENDATIONS

- Key Takeaways:
  - Parents falling asleep may happen, regardless of the unit's policy on KC, and the risk must be managed.
  - Infants may also be at risk when their parents are awake.
  - KC should not feel like "more work" for the staff when safety is provided
  - Implementing a structured risk management framework can help mitigate these risks.PMC+1PubMed+1
- Recommendations:
  - Develop and enforce policies for safe KC, incorporating appropriate safety measures for hospital and teach how to do it at home.
  - Invest in training programs and simulations for staff **and parents.**
  - Continuously monitor KC practices and outcomes to adapt strategies as needed.PMC
- Future Directions:
  - Further research to evaluate the effectiveness of risk management strategies in KC.
  - Quality improvement initiatives to enhance KC practices.

This is the outcome we all work toward:

GIVING EVERY BABY

THE BEST POSSIBLE START–

SO EVERY FAMILY CAN HAVE

THE BEST POSSIBLE LIFE,

FULL OF LOVE, CONNECTION, AND POSSIBILITY.

HAPPY 2025 kangaroo care day May 15th

www.kangaroo.care

https://kangaroo.care/pages/join-the-kangaroo-care-community

SUGGESTED QUESTIONS FOR THE KANGAROO CARE WRAPS MANUFACTURER BEFORE A TRIAL

Safety & Risk Management

- **Is it safe for a parent to fall asleep during kangaroo care?**
- How does the device mitigate the risk of infant falls, airway obstruction, or dislodgement of lines and tubes?
- Has the device been tested or evaluated in high-acuity settings such as Level III or IV NICUs? Share Publications.

Clinical Usability & Flexibility

- Can the device be used for both clothed and skin-to-skin (kangaroo) care?
- What steps ensure proper fit and safe containment of the infant during use?
- What is the recommended weight and gestational age range for appropriate use?
- Does the device allow for quiet, quick and quiet access to the infant for clinical or parental interventions without disrupting care?

Training & Implementation

- What training materials or onboarding support are available for staff and families?
- On average, how long does it take for clinical staff to become proficient in using the device safely?
- How many devices does a family need from admission to discharge?

Infection Control & Laundering

- Is the device intended for single-patient or multi-patient use?
- What are the recommended cleaning or laundering procedures?
- Is the device compatible with existing infection prevention and control protocols?

Parental Experience & Trauma-Informed Design

- How does the device support exhausted or anxious parents and promote their confidence in holding their baby safely?
- Was the device developed or reviewed with input from NICU parents or trauma-informed care professionals?
- Can it be used at home for an effective transition to home?

Operational & Purchasing Considerations

- How many sizes are available, and can the device be adjusted for different body types and clinical scenarios?
- What is the shelf life of the product?
- What is the unit cost, and are bulk discounts or institutional pricing option offered?

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FROM RISK TO REFORM: REMOVING BARRIERS TO SAFER SKIN-TO-SKIN (KANGAROO) CARE

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