



Kangaroo transport for neonates

SAFE AND SOUND?

Kangaroo care in action at the Programa Madre Canguro Integral – Fundación Canguro, Universitario San Ignacio Hospital, Bogotá, Colombia

With the concept of 'kangaroo transport' having been raised recently in aeromedical literature, Debbie Thomas looks at whether it's a method set to be adopted by air medical providers, or should be reserved for exceptional cases only

Incubators have come a long way since they were first exhibited, complete with their neonate occupants, in Berlin, Germany in 1896 – and then again at an amusement park on Coney Island, US in 1903 by paediatrician and baby incubator inventor Dr Martin A. Couney. Technological advances, testing, safety standards and decades of experience have all helped to make incubators part of a recognised standard of caring for and transporting pre-term infants. But another method of caring for and transporting neonates, known as kangaroo maternal care or kangaroo mother care (KMC), exists and has been researched and used in a number of countries.

KMC can be used in different ways, but one method that is being practised increasingly in high-tech settings is skin-to-skin contact between the neonate and his mother. The pre-term infant is usually dressed in a nappy and a cap, held in an upright, prone position against the bare chest of his mother, and covered with clothing or a blanket.

According to the *Journal of Human Lactation* report *Intermittent kangaroo mother care: a NICU protocol*, 'the original KMC method with ideally 24-hour-per-day mother-infant skin-to-skin care, namely continuous KMC, was intended as an alternative to conventional care in incubators in low-income settings'. The same report shares recommendations about how KMC should be implemented in neonatal intensive care units (NICUs), and how it is being used in affluent settings on an intermittent basis, with each skin-to-skin contact session lasting from one to three hours, and often

used alongside breastfeeding promotion or as a way of supporting parents. This type of care, often described as intermittent kangaroo mother care (I-KMC), is also used as a mode of transport when moving infants to or from incubators or cribs for KMC sessions within hospitals.

Dr Charlotte Bennett, neonatal medical director for UK fixed-wing air ambulance provider Air Medical Ltd (AirMed), believes that I-KMC 'has proven benefits for both mother and baby and is now established as a key element of neonatal facilities across the world'. However, Bennett highlights, as with any other medical therapy, I-KMC involves a balance of risks and benefits. And to address this balance, 'neonatal units will have in-house guidelines to define the group of babies for whom the potential benefits are less likely to be offset by exposing the baby to risk arising from the physiological, practical or environmental challenges of moving the baby from the cot or incubator'.

KMC takes flight

A case review in the *Air Medical Journal (AMJ)* made reference to the success of an unplanned kangaroo transport (KT) rescue, involving the flight of a woman and her pre-term infant in a rural setting. In this case, the flight rescue team members believed they were about to airlift a woman who was six to eight months pregnant, but shortly before they arrived, the woman gave birth, and the crew were faced with the dilemma of transporting a neonate without the necessary equipment; in this case, an incubator. Dr Deborah L. Funk, medical director at Life Net of New York, and co-contributor to the case review, stated: "Given that the infant transport unit was not onboard the aircraft, [the crew] needed an appropriate means to move the infant while maintaining its body temperature. Having read

somewhere about the concept of kangaroo transport, the team made the decision to complete the move in that manner.”

Rather than secure the infant to the mother, who needed to be transferred by stretcher on a ground ambulance, the rescue team opted to secure the neonate to the chest of the flight nurse by placing the infant inside the nurse’s flight suit and wrapping both nurse and infant in a jacket. During the 18-minute flight, the team kept the interior of the craft at a constant temperature of 66°F (19°C).

The AMJ explains that the team chose KT as a way of maintaining the baby’s body temperature during transfer in an environment of freezing ambient temperatures – to minimise the complications associated with increased mortality during this very early stage of life. This variation of KT also facilitated the use of cardiac and pulse oximetry monitoring to keep the infant under constant observation.

Prior to the article, numerous large-scale Cochrane studies examined the practice of KMC outside a hospital setting in both developed and developing environments. The studies, which examined more than 3,900 infants, revealed that ‘the identified children, not only had a reduction in overall mortality, but there was also a significant reduction in infections, hypothermia, and overall length of stay’.

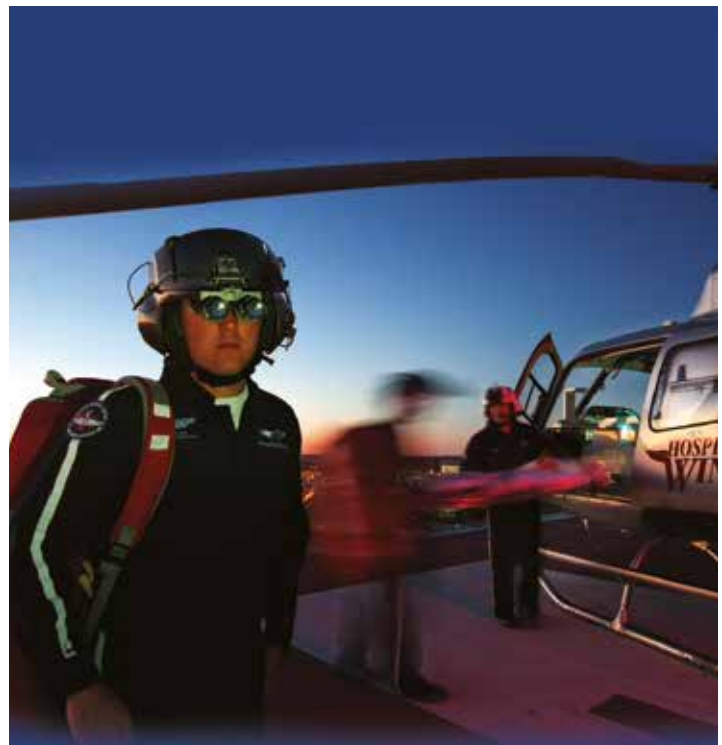
Safety first and foremost

But while there are arguments to support the use of KT in rural settings where incubators or paediatric-securing equipment such as a Pedi-Mate may not be readily available, specialists voice numerous reservations about the use of KT, particularly outside a rural setting.

Dr Andrew Berry, state director at NETS in New South Wales (NSW), Australia, explained that while kangaroo care might achieve the goal of warming an otherwise cold baby, much like an incubator, it should not be at the cost of physical safety. He added that ‘in environments where passenger safety is not a high priority (e.g. where seatbelt wearing is uncommon or people and their children commonly travel by motorcycle), then these concerns might not be so relevant. In other words, kangaroo care in transporting a newborn might be no more risky than having ‘a child on a parent’s back riding a moped’.

Members of Berry’s team make the point that while kangaroo care ‘sounds cosy’, they are not convinced of its safety, and that they would advocate its use only in desperate circumstances. The team makes reference to Roads and Traffic Authority of NSW statistics: “Unrestrained children were more likely to die in crashes: in 1997, 29 unrestrained children died versus six restrained. In 2009, 12 unrestrained children died versus one restrained.” A team member adds that the ‘gold standard should be restrained transport and calculated risks should be acknowledged with parents when it is required to take them’. Bennett echoes these concerns, and questions the use of kangaroo care from a legal standpoint: “Transporting an infant in any setting using kangaroo care as an alternative to an incubator system would clearly place the teams and the service at risk of criminal breach of law.” Berry advises that those considering such transport should first check with the authorities whether young infants are permitted to travel unrestrained.

Reflecting on the mission discussed above, Funk explained: “I do not recommend routine kangaroo transport for air medical agencies. Our patient care guidelines require neonates be moved in a transport unit that has been designed to keep them safe and warm. This case was very out of the ordinary and was published in order to share the ‘outside the box’ actions of the flight crew. We found it an interesting way to improvise given the situation, but would not recommend this become standard.” She adds: “This crew was fortunate that the neonate did not require any intervention during the flight.” ▲



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