Advancements and prospects of kangaroo care worldwides

Avanços e perspectivas do cuidado canguru no mundo

Avances y perspectivas del cuidado canguro a nivel mundial

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Abstract

Objective: To present the historical milestones and international events on Kangaroo Care, its advancements, and perspectives.
Methods: This study comprises a documentary analysis of articles from international events on Kangaroo Care made available by the Kangaroo Foundation.
Results: A timeline is presented featuring historical milestones in the implementation of Kangaroo Care in various global settings along with summaries of international workshops. Evidence on Kangaroo Care has transformed the reality of care for premature and low birth weight newborns worldwide.
Conclusion: Analyzing the trajectory of Kangaroo Care and documents from international meetings prompts reflection on how this care method originated and why it has gained global prominence today. Advancements and perspectives span from the method's application to its nuanced variations depending on the implementation context, tailored to each country's specificities.

Keywords

Nursing pediatric; Kangaroo care; Premature newborn; Low birth weight newborn; Humanization of care; Neonatal Intensive Care Units

Resumo

Objetivos: Apresentar os marcos históricos e analisar os eventos internacionais sobre o Cuidado Canguru, seus avanços e perspectivas.
Métodos: Trata-se de um estudo reflexivo, com análise documental de materiais da Fundação Canguru.
Resultados: É apresentada uma linha do tempo com marcos históricos sobre a implantação do Cuidado Canguru nos diferentes cenários mundiais, com resumo dos *workshops* internacionais. As evidências sobre o Cuidado Canguru mudaram a realidade do cuidado ao prematuro e ao recém-nascido de baixo peso ao nascer no mundo.
Conclusão: Analisar a trajetória do Cuidado Canguru e os documentos sobre as reuniões internacionais nos faz refletir como esse cuidado surgiu e por que ele tomou proporções mundiais atualmente. Os avanços e perspectivas estão desde o método de aplicação até suas nuances de variações, dependendo do lugar a ser implementado, segundo especificidades de cada país.

Descritores

Enfermagem pediátrica; Método canguru; Recém-nascido prematuro; Recém-nascido de baixo peso; Humanização da assistência; Unidades de Terapia Intensiva Neonatal

Resumen

Objetivo: Presentar los hitos históricos y los eventos internacionales sobre el Cuidado Canguro, sus avances y perspectivas.
Métodos: Se trata de un Análisis Documental de los artículos de los eventos internacionales sobre el Cuidado Canguro proporcionados por la Fundación Canguro.
Resultados: Se presenta una línea de tiempo con los hitos históricos sobre la implementación del Cuidado Canguro en diferentes contextos globales, junto con un resumen de los talleres internacionales. Las evidencias sobre el Cuidado Canguro han transformado la atención a los prematuros y a los recién nacidos de bajo peso al nacer en el mundo.
Conclusión: Analizar la trayectoria del Cuidado Canguro y los documentos sobre las reuniones internacionales nos invita a reflexionar sobre cómo surgió este método y por qué ha adquirido una dimensión mundial en la actualidad. Los avances y perspectivas abarcan desde el método de aplicación hasta sus variaciones dependiendo del contexto local, según las especificidades de cada país.

Descriptores

Enfermería pediátrica; Método canguro; Recién nacido prematuro; Recién nacido de bajo peso; Humanización de la atención; Unidades de Cuidados Intensivos Neonatales

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Introduction

Pointing out what neonatal care has been like for premature and low birth weight newborns takes us back to the past but, at the same time, makes us present the historical milestones, advances and perspectives of Kangaroo Care in the world and in Brazil. Worldwide, 1 in 10 babies are born prematurely (<37 weeks of gestation). Premature birth rates have barely changed over the last decade, and in some countries the rates are high. In 2020, it is estimated that almost 1 million newborns died from complications of premature birth (one baby every 40 seconds), and millions more survive with disabilities.[1] Several strategies have been developed to improve or reduce neonatal mortality and morbidity indicators, including the Kangaroo Care Method (KCM), which emerged worldwide in the 1970s.

Numerous terms are used in the literature: Kangaroo-Mother Care Method, Kangaroo Method, Kangaroo Mother Care (KMC), Kangaroo Care and skin-to-skin contact. These terms were used based on how kangaroos with marsupial pouches carried their very premature young inside the pouch and close to their chest, with their bellies against their mothers' bellies and being fed exclusively with breast milk until they were old enough and mature enough to leave the mothers' pouch, which takes many months. Thus, the kangaroo position consists of keeping newborns in skin-to-skin contact, only wearing diapers, in an upright position next to parents' chest.

From then on, this strategy was considered a new technology that proved to be effective. Many countries have adapted it as a strategy in perinatal care or instituted it as a health policy in the case of Brazil. Thus, the present study aimed to present the historical milestones and analyze the international events on Kangaroo Care in the world, its advances and perspectives.

Methods

This is a reflective study based on documentary analysis of materials with information about the historical landmarks, year, city, topics and main conclusions of the International Meetings and workshops on the Kangaroo Foundation's Kangaroo Method.

Results and discussion

Starting points and historical perspectives of the Kangaroo Method

Before discussing Kangaroo Care, it is impossible not to remember how neonatology took its first steps, when in the mid-19th century there were no institutions that provided specific care for children and newborns. For low birth weight newborns (LBWNB) (below 2,500 g) and premature newborns (PTNB) (with a gestational age of less than 37 weeks), the prognosis was death. Therefore, children who were born prematurely or with malformations were stigmatized as beings who would not survive, as it was believed that natural selection would do its job. There was a thought that natural selection would do its job with newborns "less adapted" to evolution, being attributed with the term 'weaklings'.[3]

In 1878, the first incubator based on chicken egg incubators was produced in Paris, and its use in maternity wards had a positive impact on reducing the number of deaths of newborns weighing less than 2,000 g. With the use of an incubator, there was a continuous decrease in the mortality rate, which changed from 66% to 38% in newborns weighing less than 2,000 g at birth.[4]

In 1892, the creation of the childcare clinic in Paris by French obstetrician Pierre Budin initiated the principles that underpin neonatal medicine. Since then, technological innovations in neonatology have continued and we have reached the point where we can keep newborns alive with increasingly lower weights and gestational ages, especially in developed countries due to easy access to supplies and skilled labor.[3]

In 1979, the Maternal and Child Institute in Bogotá, Colombia, was experiencing severe overcrowding in its Neonatal Intensive Care Unit, with high rates of infection and maternal abandonment, and a lack of materials and qualified professionals. Thus, pediatrician Edgar Rey Sanabria and Dr. Hector Martinez began using mothers themselves as a source of heat and nutrition for PTNB and LBWNB in stable clinical conditions, replacing incubators, in order to improve care in that country, ideally minimizing scarce care costs, using mothers as a source of heat for thermal stabiliza-

tion through skin-to-skin contact, stimulating neuropsychomotor development and building an emotional bond with the mother, thus creating the method called "Kangaroo Mother". [2]

Previously, newborns were only kept in incubators or other heating devices to receive warmth until their temperature stabilized, and in many cases, initial nutrition was parenteral, with orogastric tubes that continued until they were able to breastfeed and swallow properly. This type of care consumes economic, technical and human resources that are sometimes insufficient in developing countries. The scarcity of resources sometimes forced healthcare professionals to accommodate two or more newborns in the same incubator, with all the risks that this practice entails. Moreover, the prolonged separation between mother and newborn represented a situation of emotional instability.[5]

The United Nations Children's Fund (UNICEF) was one of the largest funders and promoters of KCM around the world.

Importance of the Kangaroo Method

As previously described, in 1978, Dr. Edgar Rey conceived of outpatient monitoring of premature babies at the Maternal and Child Institute (MCI). The following year, Dr. H. Martínez joined and coordinated the MCI Kangaroo Mother Program with the subsequent collaboration of Dr. Luis Navarette and UNICEF.

According to Sanches *et al*. (2015), Colombia supported the school of thought in favor of the technique with the aim of achieving, through early skin-to-skin contact, a greater emotional bond between the mother and baby, greater development through breastfeeding and greater thermoprotective stability. This would reduce the demand for incubators and financial demands, in addition to encouraging "early discharge" with post-discharge follow-up on an outpatient basis. On the other hand, another school of thought spread throughout the world was against this movement, disabling the chances of a greater bond for psycho-affective ties between mothers and their newborns, replacing the "machine and specialist" with the "human and family".[6]

Thus, from 1989 onwards, there was a study of two cohort studies with the aim of demonstrating the efficacy and safety of KMC, showing that mortality was not higher in the kangaroo cohort.[7-9]

In 1993, the Kangaroo Foundation (KF) was created by researcher Nathalie Charpak to develop further research, training and advocacy for "KMC" with systematic dissemination of KCM and guidance on the need for more research in the area, creating the International Kangaroo Network in 1996. Thus, the first international meeting on Kangaroo Care took place in Trieste, Italy, and was held successively every two years. Therefore, between 1996 and 2005, KF team reviewed the literature that assessed KCM worldwide.

In 2003, the World Health Organization (WHO) published a practical guide on KCM, which has been translated into more than 15 languages. More than 70 multidisciplinary healthcare teams in 30 developing countries, such as the Caribbean and Latin America, including Haiti, El Salvador, Dominican Republic, Honduras, Nicaragua, Brazil, Venezuela, Guatemala, Ecuador, Chile and Argentina, have been trained in Bogotá.

With the need to record meetings and increase the dissemination of this knowledge, after the creation of KF, strategies emerged to gather a compilation of studies and information through websites, one in English and the other in Spanish (https://fundacioncanguro.co/; https://www.fundacioncanguro.org/), with scientific productions and summaries of meetings for the dissemination of knowledge about Kangaroo Care.[10]

Between 1996 and 2024, 14 meetings took place in different countries, the last of which was held online in 2024, celebrating 30 years of KF (https://fundacioncanguro.co/).

Recommendations and limitations of its application in clinical practice

At the first meeting in 1996 in Trieste, Italy, the creation of KCM was announced, with 36 participants from 15 countries. The physiological effects of the kangaroo position in LBWNB, very low birth weight newborns and PTNB were discussed as well as its acceptance by mothers and healthcare professionals. The implementation of KCM was recommended for LBWNB and PTNB at all levels of care, indicating good

acceptance. The need for further studies for newborns younger than 30 weeks and weighing less than 1,000 g was highlighted. To achieve this goal and to develop the practice, the International Network on KCM (INK) was created to promote the method globally with training and teaching materials[10]. This first meeting was crucial in neonatal care, its adoption in countries at different levels of development reaffirmed its safety and uniformity in results.

In 1998, the second meeting of INK in Bogotá, Colombia, addressed the challenges of implementing KCM as standard care, depending on the level of development of countries. It was recommended that Ministries of Health (MoH) incorporate KCM for eligible LBWNB. Among the challenges highlighted were the need for medical training, communication between professionals and parents, and increased awareness of the method. The technique was recommended as an emergency care for hypothermia, hypoglycemia, and as a high-risk means of transportation. The guidelines developed in Colombia served as the basis for the future WHO Kangaroo Mother Care: A Practical Guide, with a focus on developing countries.[10]

Recognizing and addressing the challenges faced by different countries is essential to promote the widespread and effective applicability of KMC. The development of guidelines by WHO for the KCM Guide was an important milestone, as it allows care to be adapted to the specificities of each context, whether in developed or developing countries.

The need for greater professional training allows scientific expansion and expanded care. In Brazil, these advances have driven the implementation and improvement of Kangaroo Care, especially when dealing with challenges such as professional training and awareness about its importance in neonatal care.

With the third meeting in Indonesia, in response to aspirations regarding its implementation worldwide, the WHO has made the Kangaroo Mother Care Manual available, translated into several languages and with free access. Moreover, the 3rd workshop addressed, among many subtopics, the conception of KCM practice in Africa, such as the experience at the Tokoin Teaching Hospital in Lomé, Togo, which confirmed the effectiveness of care in reducing infections and hospital costs.[10]

A crucial step towards the systematization, expansion and application of the method was made possible thanks to the manual in several languages, enabling countries with different levels of socioeconomic development to receive knowledge about the practice and adapt it to their realities. In the same year, in Brazil, the Guidance Standard for the Implementation of the Kangaroo Mother Method was published by Ordinance 693-5/7/2000, formalizing its adoption in the Brazilian health system and promoting its beginning with training of professionals and awareness in the country.[11]

KCM has faced and continues to face challenges, such as the need for ongoing training and cultural changes in some regions. Furthermore, there are regional inequalities due to the large territorial expansion and lack of infrastructure in certain areas of Brazil. The next advances in KCM depend on investments in education, research and better implemented public health policies. The trajectory of KCM, with support from the WHO and national policies, highlights advances, but the full realization of its benefits requires continuous effort to overcome challenges and ensure that newborns throughout the country can benefit from practice.

In 2002, during the fourth International Meeting in South Africa, clinical studies were reviewed with all their components. Regarding breastfeeding, studies focused on the method with HIV+ babies and mothers and the importance of supplementation and milk fortification, but for mothers without HIV, breastfeeding was encouraged.[10]

Discussions about disparities arise from a commitment to adapting care practices to the specific needs of different populations and health contexts, such as HIV-positive mothers, allowing the method to be strengthened despite the various problems that may arise. Adaptation emerges as an alternative to encompassing different health contexts in a large territory with disparities, as is the case in Brazil and in many parts of the world.

Concerning outpatient monitoring, the meeting reinforced the need for a community support network. This component is crucial to ensure continuity of care after hospital discharge, providing ongoing support to families and monitoring child development. In Brazil, the third stage of Kangaroo Care is carried out jointly

with primary care, reinforcing the commitment. Even so, Brazil faces challenges, such as the need for ongoing training of healthcare professionals according to different scenarios.

In 2004, the fifth meeting took place in Rio de Janeiro/BR, with some tensions on the first day of the event, as representatives from 13 countries were unable to attend due to administrative errors. In short, topics such as the humanization of neonatology and the implementation of Kangaroo Care in Intensive Care Units were established, encouraging support for the entry of fathers into intensive care and the participation of the father figure in care. A general report was made on the training financed by the National Bank for Economic and Social Development (In Portuguese, *Banco Nacional de Desenvolvimento Econômico e Social* - BNDES), a major disseminator of the Kangaroo Method in Brazil.[10] The discussion of parental involvement in neonatal intensive care marked a significant advance in the humanization of Brazilian neonatology, which demonstrated the concern for methods of adapting care in a controlled environment, especially strategies to strengthen family bonds, especially those of the father figure. This perspective of parental involvement represents an important evolution in the neonatal care paradigm, promoting a more welcoming environment focused on the family, serving as a great global example.

For the year 2006 in Ohio, Cleveland, among numerous topics, the reaffirmation of the care indicated as essential for full-term newborns was discussed.[10]

In 2008, the first European KCM conference was held in Sweden, which reinforced the need to update the 2002 WHO practical guide to the KCM. Important recommendations were made, including: KCM as complementary care for all newborns requiring intensive neonatal care; raising awareness among parents about the importance of KCM in prenatal care; adequate training for professionals; dissemination of KCM in the media, emphasizing its daily need, even if intermittently; inclusion of newborns exposed to HIV, with artificial milk feeding; and family participation in KCM to create a safe environment for the survival of PTNB.[12]

At the 8th international meeting in 2010, in Canada, innovative studies were presented, such as the influence of KCM on neurodevelopment and child behavior, in addition to the imposition of protocols for child and family monitoring of KCM graduates in a segment outpatient clinic at a national level, including which barriers hospital environments may present for its implementation. KCM was considered a philosophy of brain care that requires short- and long-term segment monitoring of infants and families, with a positive impact on economic aspects, in addition to contributing greatly to the reduction of infant morbidity and mortality under five years of age worldwide.[10]

With PTNB remaining in the hospital health unit, the implementation of the necessary care for brain neuroprotection, such as creating a bond with the family, ends up presenting barriers to its fulfillment. Despite being widespread and having made some progress, family care within the hospital environment in units faces challenges, such as adequate training of professionals and overcoming structural barriers in hospitals that still persist. The perspective is to expand access to the method and reinforce policies of humanized and family-centered care, inspired by international discussions to maximize the benefits of KCM for all children and their families, regardless of hospital admission.

In 2012, the 9th meeting addressed KCM as the main philosophy of care for PTNB and LBWNB worldwide. Within this subject, several subtopics were discussed, including KCM from the perspective of brain functioning and development, and cerebral motor function in adolescents born very prematurely.[10] This highlights the importance of KCM for the neurocognitive and motor development of premature infants. In Brazil, advances include its integration into health policies and the need for more research on neuroprotection of premature infants with adequate resources. Future perspectives involve expanding access to KCM and integrating innovative practices to strengthen neonatal care.

In 2014, the topic of the 10th meeting covered "KMC: an effective way to improve the survival and quality of survival of premature and LBWNB: evidence and successes", where the science of KMC, its art, practice in health units and in the community were assessed.[10]

In 2016, the 11th meeting aimed to improve the coverage and quality of KCM worldwide. In this context, barriers and facilitators were analyzed from the perspective of countries, professionals and different

health systems. The key points of the discussions were adequate training of professionals, adherence to protocols and the creation of a welcoming environment for parents and families of newborns. The need for more investment in KCM awareness, implementation, monitoring and assessment, inclusion in the academic curricula of healthcare professionals, constant updating of practical guides and protocols, and greater flexibility in policies for the inclusion of family members in neonatal units are factors that facilitate coverage and improve the method quality.[12]

In 2022, best practices were assessed, including immediate Kangaroo Care and Kangaroo Care and COVID-19, nutrition, and pain prevention and treatment. The meeting addressed the scenarios faced with the recommendations for social distancing with the ongoing global health emergency. The problems faced by social isolation and broken bonds were taken into consideration, which is very different from the methodology of Kangaroo Care worldwide.[13]

Despite numerous studies with evidence of the benefits of KCM and international recommendations, KCM coverage is still low and neonatal deaths still have high rates, especially in countries with limited resources. The difficulties have already been pointed out, solutions suggested, strategies for disseminating the method have been created and what we see is the persistence of skepticism among a large part of health professionals, added to the difficulty of communication between the team and the family, in addition to its limitation in hospital environments, the overvaluation of technology that is based on humans and the lack of structure for implementing the method persist, mainly due to regional inequalities due to the large territorial extension and lack of infrastructure and coverage in certain areas of Brazil. Contrary to what is expected, KCM does not require the use of demanding technologies, having been created in countries where resources were not extensive and thus being transported to high-income countries.[13]

The 14th meeting was canceled in its in-person format in Uruguay and the scientific conference was held online, where KF's 30th anniversary was celebrated. As a global proposal to each country, the recommendation is that all hold their own national conferences in order to develop their specificities in a summary with their results so that in the world conference on its last day, a global overview can be presented with the experiences of each country. At the 14th meeting in 2026, the event will return in its in-person format in Brazil, where it has demonstrated itself to be an example of KCM for the planet due to its public policy and its national advances.[14]

Application of the Kangaroo Method in Brazil

In Brazil, Kangaroo Care began to be used first at *Hospital Guilherme Álvaro* in São Paulo in 1991 and then at the *Instituto Materno Infantil de Pernambuco*, Recife in 1993, with dissemination to several states, but without methodological and criteria standardization. [10]

Following this, in March 1999, in Rio de Janeiro, sponsored by BNDES, the first Brazilian National Kangaroo Mother Conference was held in the country, where the five hospitals that already used this practice presented their experiences in relation to its use. As a result of this conference, the MoH technical area for child health formed a multidisciplinary group to discuss the conceptual bases of what would soon become the method.

Once the benefits of the method were understood, it was concluded that it was not just another care technique, but a broad proposal for humanization in the context of neonatal care that needed to be standardized, organized and expanded in a systematic manner. Thus, in December 1999, the Standard for Humanized Care for Low-Weight Newborns - Kangaroo Method was created, published in Ordinance 693 of 05/07/2000, constituting the Government Policy for Care for Low-Weight Newborns, placing Kangaroo Care in a systematized and standardized manner, ceasing to be just a method and becoming a national public health policy with professional training and a consequent project to expand and strengthen the Kangaroo Method with the decentralization of State Reference Centers spread throughout the Brazilian territory where until 2010. They were basically guided towards hospital care, and only after 2011 there was an initial articulation with primary care.

On September 22, 2022, the international meeting on the Kangaroo Method was held in Brazil, focusing on immediate Kangaroo Care for healthcare professionals' daily lives in Brasília. The event presented the

project of the American Academy of Pediatrics called "iKCM", immediate Kangaroo Mother Care, as well as discussing prematurity and neonatal mortality in Brazil, including the creation of monitoring clinics for premature babies and presentation of the history and implementation of KCM in the Brazilian health system. At the meeting, a randomized study carried out in five countries showed that immediate skin-to-skin contact after birth and up to 2 hours later reduces neonatal mortality by 25% in at-risk babies. Also highlighted was the training in immediate Kangaroo Care and engagement strategies for multidisciplinary teams (https://egestorab.saude.gov.br/image/?file=20220923_I_Programacao-eventometodocanguru-compressed_41685960021942764 42.pdf e ONG PREMATURIDADE, 2022).

Given the historical trajectory, discussions about human care versus incubation in the care model initially developed in Colombia have gone through many scenarios and modifications to adapt to the realities of each place. Originating in a poor country, its advances today also encompass rich countries, overcoming cultural and structural barriers.

In relation to advances, the technique originally designated KCM for 24 hours, only after clinical stability conditions. Today, the method is recommended for at least 8 hours a day, continuously, supporting the "zero separation" policy immediately after birth, even before they are clinically stable. The technique, previously seen regionally, today perpetuates global scenarios proving with scientific evidence that the chances of babies surviving and being healthy are not always linked to the use of great technologies, but that these chances can also reach economically disadvantaged or developing countries, Brazil being one of them.

Despite the advances and being a world reference in Kangaroo Care, Brazil still faces some challenges. A study conducted with 31 healthcare professionals from the Basic Health Units (BHUs) in the city of Joinville in Santa Catarina (Brazil) represents an example of a problem faced, where it showed that the participation of Primary Care in KCM is still limited and that there is a fragmentation of care between the hospital and BHU, although the MoH recommended the articulation between hospital care and Primary Health Care at this time. We know that there is a difficulty in articulating care between the different levels and that there is a difficulty for primary care professionals to carry out the third stage of the method, which may also be linked to the scarcity of studies on prematurity and primary care, thus limiting professionals' knowledge so that they feel confident and qualified to do so. Therefore, the study cited concluded that it is necessary to invest in professional training and articulation between the different levels of healthcare.[15]

Conclusion

This study highlights the fact that KCM has advanced to several countries, both developed and developing. Originating in a poor country, its advances now also include rich countries, overcoming cultural and structural barriers. This represents progress, since all PTNB/LBWNB have the right to access KCM, encompassing the concept of equity. With 45 years of global advances and as a public policy implemented in Brazil, KCM today represents an example of follow-up care in the world. All scientific evidence proves the effectiveness and efficacy of the method. However, there are still some structural barriers to be overcome, such as the presence and humanized reception of the family in an intensive care environment, the scientific-academic expansion of its importance in the application of care, the effectiveness of continuous and prolonged contact according to the new recommendations as well as its early initiation in the delivery room and segment in primary care. The great territorial expansion of Brazil and differences in world scenarios have made adaptations of care fundamental to the development of the method in many places. These disparities and specificities found in all countries serve as guidelines for continuing discussions about Kangaroo Care around the world. Furthermore, in a world where technology is present in all aspects of human life, the evolution of knowledge that is imposed on us in a descending manner, i.e., from developed countries to developing ones, makes us reflect and believe why the KCM encounters so many obstacles, since it originated in a poor country and its use may be linked to the impression that there are no adequate resources for the complex care that these newborns require.

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