Online Supplementary Document

Chan et al. What is kangaroo mother care? Systematic review of the literature

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Table S1. Studies included in the kangaroo mother care definition systematic review (N=299), 2014

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Abouelfettoh	2011	Effect of skin-to-skin contact on preterm infant skin barrier func- tion and hospital- acquired infection	USA	Pre-post	10 Dyads	28-30 weeks	SSC	N/A	N/A	≥1	5	N/A	N/A	N/A
Abul-Fadl	2012	Evaluation of mothers' knowledge, attitudes, and practice towards the ten steps to successful breastfeeding in Egypt	Egypt	Pop based surveil- lance, facility evaluation	1052 Mothers	All ages	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Abul-Fadl	2011	Breastfeed- ing and skin- to-skin care in congenital heart dis- ease with heart failure	Egypt	Focus group/ interview	1052 Mothers	<24 mon.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acharya	2014	Randomized control trial of Kangaroo Mother Care in low birth weight ba- bies at a tertiary level hospital	Nepal	RCT	126 New- borns	<2000g	N/A	Once both baby and mother were ready	N/A	≥6	N/A	N/A	N/A	N/A

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Acosta Díaz	2003	Kangaroo mother care method. Clinical and humoral assessment during the first year of corrected age	Cuba	Interven- tion	120 New- borns	Premature: N/A cutoff	SSC	N/A	N/A	N/A	N/A	N/A	At 3 and 6 mon. GA	N/A
Acosta Díaz	2003	Kangaroo mother care method. Evaluation of the neuro- development at first year of corrected age	Cuba	Interven- tion	120 New- borns	Premature: N/A cutoff	ssc	N/A	N/A	N/A	N/A	N/A	At 3 and 6 mon. GA	N/A
Acosta Díaz	2003	Kangaroo mother care method. Impact on the physical and intellec- tual devel- opment at preschool age	Cuba	Retrospec- tive cohort	100 New- borns	Premature: N/A cutoff	SSC	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Acuna-Muga	2013	Volume of milk obtained in relation to location and circumstances of expression in mothers of very low birth weight infants	Spain	Interven- tion	26 Dyads	VLBW: N/A cut- off	N/A	After mother was eligible	N/A	≥2	≥5	N/A	N/A	N/A
Aghdas	2014	Effect of immediate and continuous mother-infant skinto-skin contact on breastfeeding selfefficacy of primi-parous	Iran	RCT	92 Mothers	≥37 weeks, 2500-4000g	SSC	Once eligible: N/A defini- tion	N/A	≥2	N/A	N/A	N/A	N/A

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		women: A randomized control trial												
Ahmed	2011	Community Kangaroo Mother Care: implementation and potential for neonatal survival and health in very lowincome settings	Bangladesh	Prospective cohort	4165 Dyads	All ages	SSC, EBF, FU	N/A	N/A	N/A	N/A	N/A	N/A	Home
Ahn	2010	Kangaroo care on premature infant growth and maternal attachment and post- partum depression in South Korea	South Korea	Prospective Cohort	20 Dyads	<36 weeks, <1800g	N/A	N/A	N/A	≥1	21	N/A	N/A	N/A
Akcan	2009	The effect of kangaroo care on pain in premature infants during invasive procedures	Turkey	RCT	50 New- borns	26-36 PMA, LBW	SSC	N/A	N/A	0.75	5	N/A	N/A	N/A
Ali	2009	Kangaroo mother care as compared to conven- tional care for low birth weight ba- bies	India	RCT	114 New- borns	1200-1800g	SSC	As soon as baby hemo- dynami- cally became stable	The same as SSC onset criteria	≥4-6	N/A	Weight gain for at least 3 consecutive days, no overt illness, no IV medications and on exclu- sive breast feeds	N/A	N/A

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Almeida	2007	Effects of Kangaroo Mother Care on the vital signs of low- weight pre- term new- borns	Brazil	Pre-post	22 New- borns	28-33 weeks	ssc	After first assess- ment	N/A	0.5	3	N/A	N/A	N/A
Almeida	2010	The impact of kangaroo care on exclusive breastfeeding in low birth weight newborns	Brazil	Retrospec- tive cohort	43 New- borns	<2000g	SSC, EBF	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alves	2007	Early wean- ing in prema- ture babies participants of the Kan- garoo Moth- er Care	Brazil	Chart re- view, Focus group/ interview	33 Dyads	Premature: N/A cutoff	N/A	As soon as possi- ble	N/A	N/A	N/A	N/A	5 mon.	Health facility
Anderson	1986	Kangaroo care for premature infants	Colombia	Pop based surveil- lance	N/A New- borns	Premature: N/A cutoff	SSC, DC, FU	N/A	N/A	N/A	N/A	N/A, but after mother edu- cation about how to feed and perform KMC.	N/A	Health facili- ty
Anderson	2003	Mother- newborn contact in a randomized trial of kan- garoo (skin- to-skin) care	USA	RCT	91 Dyads	32-36 weeks, 1300-3000g	SSC, DC	Immedi- ately after birth	N/A	24	2-5	If healthy enough to leave at 48 hours	N/A	N/A
Andrade	2005	Suckling of the prema- ture new- born child: comparison between the kangaroo mother method with traditional care	Brazil	Prospective cohort, descriptive	30 Dyads	30-35 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Araújo	2010	Mother Kangaroo Method: an investigation about the domestic practice	Brazil	Focus group/ interview	30 Parents	Premature: N/A cutoff, ≤2000g	N/A	Once eligible: N/A defini- tion	N/A	5-6	N/A	≥1500 g, weight gain for 3 days , efficient suc- tion and (EBF, and the mother moti- vated to con- tinue KMC full-time, family support ,outpatient ensured and guaranteed if any abnormal- ity occurring	3 times in the first week after discharge, 2 times in the second, once a week until reach 2500g	Home
Arivabene	2010	Kangaroo mother method: Mothers' experiences and contri- butions to nursing	Brazil	Focus group/ interview	13 Mothers	N/A	SSC	N/A	N/A	N/A	N/A	N/A	3 rd phase of the study, between 2000-2006	Home
Arzani	2012	Kangaroo care effect on self- esteem in the mothers of low birth weight in- fants	Iran	RCT, pre/post	60 Mothers	1000-2500g	SSC	N/A	Physiological stability of infants was an inclusion criteria	≥2	N/A	N/A	N/A	N/A
Azevedo	2012	Safety of Kangaroo Mother Care in intubated neonates under 1500 g	Brazil	Pre-post	43 New- borns	Premature: N/A cutoff, <1500g	SSC	N/A	Respiratory and hemo- dynamically stable, no signs of pain observed	1	1	N/A	N/A	N/A
Azevedo	2011	Kangaroo mother care in preterm newborns on artificial ventilation: An evalua- tion of be- havior pat- terns	Brazil	Pre-post	44 New- borns	29 weeks, 1096g average	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Bang	2011	Perception of Nurses and Physicians in Neonatal Intensive Care Units on Kangaroo Care	South Korea	Focus group/ interview	149 Nurses, 19 Doc- tors	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bauer	1997	Body temperatures and oxygen consumption during skinto-skin (kangaroo) care in stable preterm infants weighing less than 1500 grams	Germany	Pre-post	22 New- borns	<1500g	SSC	At 5pm after moni- tored in incuba- tor and fed	N/A	1	7	N/A	N/A	N/A
Bauer	1996	Metabolic rate and energy balance in very low birth weight infants during kangaroo holding by their mothers and fathers	N/A	Pre-post	11 New- borns	28-32 weeks, 560-1390g	SSC	8-48 days after birth	N/A	1	1	N/A	N/A	N/A
Bazzano	2012	Introducing home based skin-to-skin care for low birth weight newborns: a pilot approach to education and counseling in Ghana	Ghana	Focus group/ interview	9 Mothers, 23 HCWs	LBW: N/A cutoff	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Begum	2008	Cerebral oxygenation responses during kan- garoo care in low birth weight in- fants	N/A	Pre-post	16 New- borns	<33 weeks, <1600g	SSC	After 30 minutes in incu- bator	N/A	1	1	N/A	N/A	N/A
Bera	2014	Effect of kangaroo mother care on growth and development of low birth weight babies up to 12 month of age: a controlled clinical trial	India	Interven- tion	500 Dyads	<2500g	SSC, EBF, FU	Once hemo- dynami- cally stable	The same as SSC onset criteria	1 on first day, 2 on second, 3 on third, and then as long as possible	N/A	N/A	N/A	Health facili- ty
Bergh	2013	Progress with the implementa- tion of kan- garoo moth- er care in four regions in Ghana	Ghana	Facility evaluation	38 Facilities	N/A	SSC, EBF, FU	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Bergh	2003	Develop- ment of a conceptual tool for the implementa- tion of kan- garoo moth- er care	South Africa	Facility evaluation	2 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergh	2012	Progress in the imple- mentation of kangaroo mother care in 10 hospi- tals in Indo- nesia	Indonesia	Facility evaluation	10 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Bergh	2008	Scaling up kangaroo mother care in South Africa: 'on- site' versus 'off-site' educational facilitation	South Africa	RCT	36 Facili- ties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergh	2012	Translating research findings into practicethe implementation of kangaroo mother care in Ghana	Ghana	Pop based surveil- lance, facility evaluation	38 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergh**	2009	Translating research findings into policy and practice. The scaling up of kangaroo mother care in Ghana.	Ghana	Facility evaluation	38 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergh**	2009	Scaling up Kangaroo Mother Care in Ghana	Ghana	Facility evaluation	4 Regions (out of 10)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergh**	2012	Evaluation OF Kangaroo Mother Care Services in Malawi	Malawi	Facility evaluation	14 Facili- ties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	until reached 2500g	Home and health facili- ty
Bergh**	2012	Evaluation OF Kangaroo Mother Care Services in Mali	Mali	Facility evaluation	7 Facili- ties	N/A	SSC, EBF,DC, FU	N/A	N/A	N/A	N/A	EBF	Different for each hospital	Health facili- ty
Bergh**	2007	Retrospec- tive Evalua- tion of Kan- garoo Moth- er Care Prac- tices in Ma- lawian Hos- pitals	Malawi, South Africa	Facility evaluation	6 Facili- ties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Bergh**	2012	Evaluation OF Kangaroo Mother Care Services in Rwanda	Rwanda	Facility evaluation	7 Facili- ties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergh**	2012	Evaluation OF Kangaroo Mother Care Services in Uganda	Uganda	Facility evaluation	11 Facili- ties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bergman	2004	Randomized controlled trial of skin-to-skin contact from birth versus conventional incubator for physiological stabilization in 1200- to 2199-gram newborns	South Africa	RCT	35 Dyads	1200-2199g	SSC	After infant dried and assessed for anomalies, resuscitated if needed, and given eye prophylaxis and vit K injection and weighed	No need to resuscitate	6	1	N/A	N/A	N/A
Bergman	1994	The 'kanga- roo-method' for treating low birth weight ba- bies in a developing country	Mozam- bique	Chart re- view	126 New- borns	<2000g	SSC, EBF	After drying	N/A	N/A	N/A	At 2500 g and breast fed only	N/A	N/A
Bergstrom	2007	Immediate maternal thermal response to skin-to-skin care of new- born	Uganda	Pre-post	39 Dyads	Non LBW	SSC	Immedi- ately after birth	N/A	0.5-1	1	N/A	N/A	N/A
Bier	1996	Comparison of skin-to-skin contact with standard contact in low-birthweight in-	Colombia	RCT	50/ Dyads	<1500g	SSC, EBF	N/A	N/A	N/A	≤10	N/A	N/A	N/A

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		fants who are breast- fed												
Bigelow	2012	Effect of Moth- er/Infant Skin-to-Skin Contact on Postpartum Depressive Symptoms and Mater- nal Physio- logical Stress	Canada	Interven- tion	90 Mothers	Full term	SSC	N/A	N/A	6 in first week, 2 until 1 mon. of age	30	N/A	N/A	N/A
Bigelow	2010	The relation between early mother-infant skin-to-skin contact and later maternal sensitivity in South African mothers of low birth weight infants	South Africa	RCT, chart review, Focus group/ interview	12 Dyads	1385-2199	SSC	Immediately after birth	N/A	N/A	N/A	N/A	N/A	Home
Blay**	2009	Ghana KMC Sudy Results	Ghana	Chart re- view	12953 New- borns	All ages, 1000- 2000g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blencowe	2009	Safety, effectiveness and barriers to follow-up using an 'early discharge' Kangaroo Care policy in a resource poor setting	Malawi	Prospective Cohort	272 New- borns	<2000g	N/A	Once eligible: N/A defini- tion	After initial stabilization in nursery	N/A	N/A	Weight >1300g and gaining weight for 3 days, maintain stable tem- perature (36- 37.5 degrees C), able to breastfeed or cup feed expressed breast milk	Fortnightly until weight 2000g, then 3- weekly until 2500g	Home and health facili- ty

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Blencowe	2005	Setting up Kangaroo Mother Care at Queen Elizabeth Hospital, Blantyre - A practical approach	Malawi	Facility evaluation	1 Facility	<2000g	SSC, EBF, DC, FU	N/A	Stable, non- sick	N/A	N/A	Established breast or cup feeding , free of serious illness, weight > 1500g	N/A	Health facili- ty
Blomqvist	2013	Initiation and extent of skin-to- skin care at two Swedish neonatal intensive care units	Sweden	Focus group/ interview	104 New- borns	27-33 weeks	SSC, DC, FU	N/A	N/A	N/A	N/A	N/A	At 34-35 weeks PMA	N/A
Blomqvist	2013	Provision of Kangaroo Mother Care: supportive factors and barriers perceived by parents	Sweden	Focus group/ interview	76 Mothers, 74 Fa- thers	28-33 weeks, 740-2920g	SSC	N/A	Without any life threaten- ing illnesses	N/A	N/A	N/A	1-2 weeks after dis- charge	Home by letter
Blomqvist	2011	Swedish mothers' experience of continu- ous Kanga- roo Mother Care	Sweden	Focus group/ interview	23 Dyads	All ages	SSC, EBF	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blomqvist	2010	Parent-infant skin-to-skin contact; How do parent records compare to nurse rec- ords?	Sweden	Prospective Cohort	20 Parents	All ages	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bohnhorst	2004	Bradycardia and desatu- ration during skin-to-skin care: no relationship to hyper- thermia	Germany	Pre-post	22 New- borns	<32 weeks, LBW: N/A cutoff	SSC	Once eligible: N/A defini- tion	After meas- urement in incubator	2	1	N/A	N/A	N/A

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Bohnhorst	2001	Skin-to-skin (kangaroo) care, respira- tory control, and ther- moregula- tion	Germany	Pre-post	22 New- borns	<32 weeks	SSC	Once eligible: N/A defini- tion	After outcome measurement in incubator	2	1	N/A	N/A	N/A
Boju	2012	Short spell kangaroo mother care and its dif- ferential physiological influence in subgroups of preterm babies	India	Pre-post	86 New- borns	<37 weeks	N/A	N/A	N/A	1	1	N/A	N/A	N/A
Воо	2007	Short duration of skin- to-skin con- tact: Effects on growth and breast- feeding	Malaysia	RCT	126 Dyads	<1501g	SSC	Once eligible: N/A defini- tion	Stable condi- tion after adaptation to extra-uterine life	1	10	Clinically well, weighed ≥1750g, tolerate oral feed, weight gain at 10g/day, no apnea or bradycardia or desaturation for ≥5 consecutive days	N/A	N/A
Bosque	1995	Physiologic measures of kangaroo versus incu- bator care in a tertiary- level nursery	USA	Prospective Cohort	8 Dyads	All ages	SSC	Once eligible: N/A defini- tion	N/A	4	21	N/A	N/A	N/A
Bramson	2010	Effect of early skin-to- skin motherinfant con- tact during the first 3 hours follow- ing birth on exclusive breastfeed- ing during the materni- ty hospital stay.	USA	Prospective Cohort	21842 Dyads	Full term	SSC, EBF	Immedi- ately after birth	N/A	3	1	N/A	N/A	N/A

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Brimdyr	2012	A Realistic Evaluation of Two Training Programs on Implement- ing Skin-to- Skin as a Standard of Care	Egypt	Focus group/ interview	40 Nurses and CHWs	N/A	SSC	Immedi- ately after birth	N/A	1	1	N/A	N/A	N/A
Broughton	2013	The cost- savings of implement- ing kangaroo mother care in Nicaragua	Nicaragua	Chart re- view	98 Charts in a Facility	<37 weeks, <2500g	SSC, EBF, DC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Byaruhanga	2008	Perceptions among post-delivery mothers of skin-to-skin contact and newborn baby care in a periurban hospital in Uganda.	Uganda	Focus group/ interview	30 Mothers	All ages	SSC	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Bystrova	2009	Early Contact versus Sepa- ration: Ef- fects on Mother- Infant Inter- action One Year Later	Russia	RCT	124 Dyads	Full term	SSC, EBF, FU	Immedi- ately after birth	N/A	2	1	N/A	1,2,3,4,5,6, 9,12 mon. GA	Home
Bystrova	2007	The effect of Russian Maternity Home routines on breastfeeding and neonatal weight loss with special reference to swaddling	Russia	RCT	153 Dyads	All ages	SSC	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A

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Calais	2010	Skin-to-skin contact of fullterm infants: an explorative study of promoting and hindering factors in two Nordic childbirth settings	Sweden, Norway	Focus group/ interview	117 Mothers, 107 Fathers	Full term	SSC, DC, FU	Immedi- ately after birth	N/A	N/A	N/A	Within 6-8 hours after birth	2 weeks after dis- charge	Home
Carbasse	2013	Safety and Effectiveness of Skin-to- Skin Contact in the NICU to Support Neurodevel- opment in Vulnerable Preterm Infants	France	Pre-post	96 New- borns	<33 weeks	SSC	N/A	FiO2 <0.50, set ventilator respiratory rate <50 per min, no major respiratory event or re- quiring medi- cal interven- tions in previ- ous 12 hours	N/A	N/A	N/A	N/A	N/A
Carbonell	2010	Quality of maternal care: a comparison of preterm infants in Kangaroo mother care and full-term infants in regular care	Colombia	Interven- tion	93 Dyads	Premature: N/A cutoff, Full term	SSC, EBF, FU	Immediately after birth	No grave health state	N/A	N/A	LBW babies had to weigh 2400 g	3,7 mon.	Home
Carfoot	2005	A randomised controlled trial in the north of England examining the effects of skin-to-skin care on breast feeding	UK	RCT	204 Dyads	All ages	SSC, EBF, FU	Immedi- ately after birth	N/A	N/A	N/A	N/A	2 week, 4 mon. after discharge	Home

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Carfoot	2004	The value of a pilot study in breast- feeding research	UK	RCT	28 Mothers	≥36 weeks	SSC	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Castiblanco López	2011	Vision of mothers in care of premature babies at home	Colombia	Focus group/ interview	8 Moth- ers	<36 weeks, 2320g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Castral	2008	The effects of skin-to-skin contact during acute pain in preterm newborns	Brazil	RCT	59 New- borns	30-<37 weeks	SSC	After 2min of baseline readings	N/A	0.283	1	N/A	N/A	N/A
Cattaneo	1998	Kangaroo mother care for low birth weight in- fants: a randomized controlled trial in dif- ferent set- tings	Mexico, Indonesia, Ethiopia	RCT	7354 New- borns	1000-1999g	SSC,EBF,FU	Immedi- ately after birth	N/A	20; mean	N/A	Indonesia; infants reach- es 1500, weight gain, stable tem- perature for 3 days (N/A for other hospi- tals)	3,10,20, 30 d post discharge	Home
Charpak	1997	Kangaroo mother versus tradi- tional care for newborn infants (less- than or equal to) 2000 grams: A random- ized, con- trolled trial	Colombia	RCT	746 New- borns	<2000g	SSC, EBF,DC,FU	Once eligible: N/A defini- tion	N/A	N/A	N/A	Regardless of weight or GA as soon as they medically stable and can suck swallow and breath	N/A	Home

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Charpak	2001	A randomized, controlled trial of kangaroo mother care: results of follow-up at 1 year of corrected age	Colombia	RCT	777 New- borns	<2000g	SSC, DC,FU	Once eligible: N/A defini- tion	Adapted to extra-uterine life, no infection or concomitant condition treated, sucking and swallowing properly, appropriate daily weight change	N/A	N/A	Neo- natologist approval	term, 3, 6, 9, 12 mon. of CA	Home
Charpak	2006	Resistance to implementing Kangaroo Mother Care in developing countries, and proposed solutions	15 develop- ing coun- tries	Focus group/ interview	17 KMC coordi- nator, 15 Facilities	N/A	SSC, DC,FU	Immedi- ately after birth	N/A	N/A	N/A	Regardless of weight or GA as soon as medically stable, can suck swallow and breath	Daily to twice weekly until regain birth weight, thriving at 15g/d	Health facility
Charpak	1994	Kangaroo Mother Program: an alternative way of caring for low birth weight in- fants? One year mortali- ty in a two cohort study	Colombia	Prospective Cohort	332 New- borns	≤2000g	SSC, DC,FU	After surviving the neonatal period (2 mon. of life) and eligible for minimal care	Adapted to extra uterine life and any infection or associated condition has been properly treated	N/A	28.5	Adapted to extra-uterine life, no infec- tion or associ- ated condi- tion, regard- less of weight or GA	1,3,6,9,12 mon.th after dis- charge	Health facility
Chermont	2009	Skin-to-Skin Contact and/or Oral 25% Dex- trose for Procedural Pain Relief for Term Newborn Infants	Brazil	RCT	640 New- borns	Full term	SSC	2 min before injection	N/A	0.083 (2 min) before injection	1	N/A	N/A	N/A
Chia	2006	The attitudes and practices of neonatal nurses in the use of kan- garoo care	Australia	Focus group/ interview	34 Nurs- es	N/A	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Chidam- baram	2013	Effect of Kangaroo mother care in reducing pain due to heel prick among pre- term neo- nates: a crossover trial	India	Crossover	50 New- borns	32-36 weeks, <2500g	SSC	N/A	N/A	≥0.25	1	N/A	N/A	N/A
Chiu	2009	Effect of early skin-to- skin contact on mother- preterm infant inter- action through 18 months: Randomized controlled trial	USA	RCT	100 Dyads	Premature: N/A cutoff	SSC	N/A	N/A	N/A	N/A	N/A	At 6, 12, and 18 mon. GA	Health facility
Christensson	1998	Randomized study of skin-to-skin versus incu- bator care for rewarm- ing low-risk hypothermic neonates	Zambia	RCT	80 New- borns	≥1500g	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chwo	2002	A randomized controlled trial of early kangaroo care for preterm infants: effects on temperature, weight, behavior, and acuity	Taiwan	RCT	34 Dyads	32-36 weeks	SSC	N/A	N/A	1	6	N/A	N/A	N/A

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Colameo	2006	Kangaroo Mother Care in public hospitals in the State of Sao Paulo, Brazil: an analysis of the imple- mentation process	Brazil	Cross sec- tional	28 Facilities	LBW: N/A cutoff	N/A	Once eligible: N/A defini- tion	N/A	N/A	N/A	Clinical stabil- ity and weight of 2000g	Once in two or three days until reach 2500g	Health facility
Collados- Gomez	2011	Assessing the impact of kangaroo care on preterm infant stress	Spain	Chart re- view, pre- post	51 New- borns	29-34 weeks PMA	N/A	N/A	N/A	≥0.5	1	N/A	N/A	N/A
Cong	2012	Effects of skin-to-skin contact on autonomic pain re- sponses in preterm infants	USA	Random- ized cross- over	26 Dyads	28-<33 weeks	SSC	N/A	N/A	0.25-0.5	N/A	N/A	N/A	N/A
Cong	2009	Kangaroo Care modi- fies preterm infant heart rate variabil- ity in re- sponse to heel stick pain: pilot study	USA	Random- ized cross- over	14 Dyads	30-32 weeks	SSC	After a NG tube or com- pleted bottle feeding	N/A	1.5	1	N/A	N/A	N/A
Cong	2011	Randomized crossover trial of kan- garoo care to reduce bi- obehavioral pain re- sponses in preterm infants: a pilot study	USA	Random- ized cross- over	28 New- borns	30-32 weeks, 2-9 days GA	SSC	80 minutes before heel sticking proce- dure	N/A	1	1	N/A	N/A	N/A
Constantinou	1999	Effects of skin-to-skin holding on general movements of preterm	USA	Pre-post	10 New- borns	33-36 weeks, <2000g	SSC	After the first feeding of the day shift	N/A	N/A	1	N/A	N/A	N/A

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		infants												
Crenshaw	2012	Use of a video- ethnographic intervention (PRECESS Immersion Method) to improve skin-to-skin care and breastfeeding rates	USA	Descriptive	261 Dyads, N/A for HCP	Full term	SSC	≤2min after birth	Healthcare provider de- termined if eligible for SSC after birth	N/A	1	N/A	N/A	N/A
Cruvinel	2007	Interaction between mothers and pre-term infants and mood changes: a comparison between the Kangaroo Mother Method and those observed on a visit to a Neonatal Intensive Care Unit	Brazil	Prospective Cohort	60 Mothers	<37 weeks, LBW: N/A cutoff	SSC,EBF	Once eligible: N/A defini- tion	N/A	N/A	N/A	N/A	N/A	N/A
Dageville	2008	Very early neonatal apparent life-threatening events and sudden unexpected deaths: Incidence and risk factors	France	Case control	62968 New- borns	>36 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dala Sierra	1994	Experience Madre Kan- garoo; Kan- garoo moth- er experi-	Honduras	RCT	20 New- borns	<2000g	N/A	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A

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		ence												
Dalbye	2011	Mothers' experiences of skin-to- skin care of healthy full- term new- borns - A phenome- nology study	Sweden, Norway	Focus group/ interview	20 Mothers	Full term	SSC	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Darmstadt	2006	Introduction of communi- ty-based skin-to-skin care in rural Uttar Pra- desh, India	India	Interven- tion	1930 New- borns, 2063 Mothers	All ages	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
De Alencar	2009	Effect of kangaroo mother care on postpar- tum depres- sion	Brazil	Crossover	180 New- borns	<2000g	SSC,EBF	When dis- charged from NICU	N/A	1-2	N/A	Weight gain of 10-15g/kg/d for 3 days	N/A	N/A
De Leeuw	1991	Physiological effects of kangaroo care in very small pre- term infants	Nether- lands	Pre-post	8 New- borns	27-29 weeks, 770-1465g	SSC	1 hour in the morn- ing/ evening after eligibility	Could clinical- ly be removed from incuba- tor without risk	1	N/A	N/A	N/A	N/A
De Macedo	2007	The mood variation in mothers of preterm infants in Kangaroo mother care and conventional incubator care	Brazil	Interven- tion	90 Mothers	LBW: N/A cutoff, Full term	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
De Vonder- weid	2003	Neonatal developmen- tal care in Italian Neo- natal Inten- sive Care Units	Italy	Pop based surveil- lance	109 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Diniz	2013	Effect of the kangaroo position on the electromyographic activity of preterm children: A follow-up study	Brazil	Interven- tion	30 Newborns	27-34 weeks	SSC	Immediately after the first electromyography reading	RR 30-60 /min, HR 120- 160 bpm, oxygen satu- ration >0.89, no respiratory distress, no cyanosis or pallor or pain, tolerate food, un -assisted breathe weight >1250g	8-12	4	N/A	N/A	N/A
Duarte	2001	Kangaroo mother care: experience report	Brazil	Focus group/ interview	1 Moth- er	Premature: N/A cutoff	SSC	N/A	N/A	N/A	39	N/A	N/A	N/A
Eichel	2001	Kangaroo care: Ex- panding our practice to critically ill neonates	USA	Facility evaluation	1 Facility	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eka Pratiwi	2009	Effect of kangaroo method on the risk of hypothermia and duration of birth weight regain in low brith weight infants: A randomized control trial	Indonesia	RCT	98 New- borns	1500-2250g	N/A	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Eleutério	2008	The imagi- nary of mothers about expe- riencing the mother- kangaroo method	Brazil	Focus group/ interview	9 Moth- ers	Premature: N/A cutoff	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Engler	2002	Kangaroo care: nation- al survey of practice, knowledge, barriers, and	USA	Facility evaluation	537 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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		perceptions												
Entringer	2013	Budget impact of using the Kangaroo Method in neonatal care	Brazil	Chart re- view	1000 New- borns	>1250g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Erlandsson	2007	Skin-to-skin care with the father after cesarean birth and its effect on newborn crying and prefeeding behavior	Sweden	RCT	29 Fa- ther infant dyads	37-41 weeks, C- Section	SSC	Immedi- ately after birth	N/A	N/A	1	N/A	N/A	N/A
Feldman	2002	Comparison of skin-to-skin (kanga-roo) and traditional care: parenting outcomes and preterm infant development	Israel	Prospective cohort	146 Dyads	<1720g, <34 weeks	SSC	Once eligible: N/A defini- tion	When medical situation stabilized and no longer needed venti- lation	≥1	14	N/A	3 mon. CA at home, and 6 mon. CA at hos- pital	Home
Feldman	2002	Skin-to-Skin contact (Kangaroo care) promotes self-regulation in premature infants: sleep-wake cyclicity, arousal modulation, and sustained exploration	Israel	Prospective Cohort	146 New- borns	<1720g, <34 weeks	SSC	Once eligible: N/A defini- tion	When medical situation stabilized, no longer needed ventilation	≥1	14	N/A	3 mon. of CA at home, 6 mon. CA at hospital	Home and health facili- ty

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Feldman	2003	Testing a family intervention hypothesis: the contribution of motherinfant skinto-skin contact (kangaroo care) to family interaction, proximity, and touch	Israel	Prospective Cohort	146 Dyads	<1720g, <34 weeks	SSC	Once eligible: N/A defini- tion	When their medical situa- tion stabilized and they no longer needed ventilation	≥1	14	N/A	3 mon. of CA at home, 6 mon.CA at hospital	Home and health facili- ty
Feldman	2014	Maternal- preterm skin-to-skin contact enhances child physio- logic organi- zation and cognitive control across the first 10 years of life	Israel	Prospective Cohort	146 Dyads	<1720g	SSC	Once eligible: N/A defini- tion	N/A	1	14	N/A	N/A	N/A
Feldman	2003	Skin-to-skin contact (Kangaroo Care) accelerates autonomic and neurobehavioural maturation in preterm infants	Israel	Interven- tion	70 New- borns	25-33 weeks, <1650g	SSC	Once eligible: N/A defini- tion	Stabilized medical situa- tion	1	14	N/A	N/A	N/A
Ferber	2004	The effect of skin-to-skin contact (kangaroo care) shortly after birth on the neurobehavioral responses of the term newborn: a randomized, controlled	Israel	RCT	47 Dyads	Full term	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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		trial												
Ferber	2008	Neurobehavioural assessment of skin-to-skin effects on reaction to pain in preterm infants: a randomized, controlled within-subject trial	Israel	RCT	30 New- borns	28-34 weeks	SSC	10 min before blood test stick	N/A	N/A	N/A	N/A	N/A	N/A
Ferrarello	2014	Barriers to skin-to-skin care during the postpar- tum stay	USA	Focus group/ interview	15 Mothers, 14 Nurs- es	N/A	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fischer	1998	Cardi- orespiratory stability of premature boys and girls during kangaroo care	USA	Pre-post	20 New- borns	25-32 weeks, <1610g	SSC	N/A	N/A	2	1	N/A	N/A	N/A
Flacking	2011	Positive effect of kangaroo mother care on long-term breastfeeding in very preterm infants	Sweden	Prospective Cohort	300 New- borns	<37 weeks	SSC	N/A	N/A	N/A	N/A	N/A	1,2,5,6 mon. of infant CA	Home

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Flacking	2013	Influence of NICU co-care facilities and skin-to-skin contact on maternal stress in mothers of preterm infants	Sweden	Prospective Cohort	300 Dyads	<37 weeks	SSC	As soon as infant stability	N/A	N/A	N/A	N/A	N/A	N/A
Flynn	2010	Neonatal nurses' knowledge and beliefs regarding kangaroo care with preterm infants in an Irish neona- tal unit	Ireland	Focus group/ interview	62 Nurs- es	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Freire	2008	Evaluation of analgesic effect of skin-to-skin contact compared to oral glucose in preterm neonates	Brazil	RCT	105 New- borns	28-36 weeks	SSC	10 min before painful stimulus	N/A	≥0.2	1	N/A	N/A	N/A
Freitas	2007	Kangaroo Mother Method: newborn weight out- come	Brazil	Prospective cohort, descriptive	22 New- borns	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Furlan	2003	Perception of parents in experiencing the kangaroo mother method	Brazil	Focus group/ interview	10 (5 couples)	Premature: N/A cutoff	SSC	Once eligible: N/A defini- tion	N/A	10; mean	N/A	After achieve ≥2000g and breast-feeding is ok	Until 60 days of life	Health facili- ty
Furman	2002	Correlates of lactation in mothers of very low birth weight infants	USA	Prospective cohort	149 Mothers	<33 weeks, 600- 1499g	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Gathwala	2010	Effect of Kangaroo Mother Care on physical growth, breastfeed- ing and its acceptability	India	RCT	110 Dyads	<1800g	SSC	N/A	Cardio- pulmon.ary stability	≥6	N/A	N/A	3 mon. GA	Home
Gathwala	2008	KMC facili- tates mother baby at- tachment in low birth weight in- fants	India	RCT	110 Dyads	≤1800g	SSC	N/A	Cardio- pulmon.ary stability	≥6	N/A	N/A	3 mon. GA	Home
Ghavane	2012	Kangaroo Mother Care in Kangaroo ward for improving the growth and breast- feeding outcomes when reach- ing term gestational age in very low birth weight in- fants	India	RCT	149 New- borns	1500g	SSC,EBF,DC, FU	Once trans- ferred to KMC ward	N/A	8	N/A	≥ 1300g or weight gain at ≥10g/day for 3 consecutive days	40 weeks GA	N/A
Gomez Papi	1998	[Kangaroo method in delivery room for full-term babies]	Spain	Prospective cohort, chart re- view	533 Dyads	Full term and delivered vagi- nally	SSC,EBF	Immedi- ately after birth	N/A	≤2	1	N/A	N/A	N/A
Gontijo	2010	Evaluation of implementation of humanized care to low weight newborns: the Kangaroo Method	Brazil	Facility evaluation	293 Facilities	N/A	SSC,EBF	Once eligible: N/A defini- tion	Stable clinical condition	N/A	N/A	N/A	N/A	N/A

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Gontijo	2012	Evaluation of the imple- mentation of Kangaroo Care by health ad- ministrators, profession- als, and mothers of newborn infants	Brazil	Focus group/ interview	293 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gonya	2013	Factors associated with mater- nal visitation and partici- pation in skin-to-skin care in an all referral level IIIc NICU	USA	Focus group/ interview	32 Mothers	<27 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gray	2000	Skin-to-skin contact is analgesic in healthy newborns	USA	RCT	30 New- borns	Full term	SSC,EBF	10-15 min before heel stick	N/A	≤1	1	N/A	N/A	N/A
Gregson	2011	Kangaroo care in pre- term or low birth weight babies in a postnatal ward	UK	Prospective Cohort	214 New- borns	All ages	SSC	N/A	N/A	N/A	N/A	N/A	6 weeks	Health facility
Gupta	2007	Kangaroo Mother Care (KMC) in LBW infants - A western Rajasthan experience	India	Facility evaluation	50 New- borns	<2000g	SSC	N/A	N/A	6-Apr	N/A	>1800g, gestation >34 weeks, mother' confidence in baby care, gaining weight, no illness, no IV medication, EBF	N/A	Home
Hake-Brooks	2008	Kangaroo care and breastfeed- ing of moth- er-preterm infant dyads 0-18 month:	USA	RCT	66 Dyads	32-36 weeks	SSC,EBF	N/A	N/A	N/A	5	N/A	N/A	N/A

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		a random- ized, con- trolled trial												
Haxton	2012	Implement- ing skin-to- skin contact at birth using the Iowa model: ap- plying evi- dence to practice	USA	Interven- tion, quali- tative	30 Mothers	All ages	SSC,EBF	Within one hour after birth	N/A	1	1	N/A	N/A	N/A
Heidarzadeh	2013	The Effect of Kangaroo Mother Care (KMC) on Breast Feed- ing at the Time of NICU Discharge	Iran	Prospective Cohort	251 Dyads	≥28 weeks	N/A	Immedi- ately after birth	Stable situa- tion (no more definition)	3-9	N/A	N/A	N/A	N/A
Heimann	2010	Impact of skin to skin care, prone and supine positioning on cardiorespiratory parameters and thermoregulation in premature infants	Germany	Crossover	18 New- borns	24-32 weeks, 750-2100g	SSC	After supine position, no more details	N/A	2	1	N/A	N/A	N/A
Heimann	2013	Infrared thermogra- phy for de- tailed regis- tration of thermoregu- lation in premature infants	Germany	Pre-post	10 New- borns	<32 weeks, 720- 1450g	SSC	N/A	N/A	1-1.5	1	N/A	N/A	N/A

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Heinemann	2013	Factors affecting parents' presence with their extremely preterm infants in a neonatal intensive care room	Sweden	Focus group/ interview	7 Moth- ers, 6 Fathers	<27 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hendricks- Munoz	2010	Factors that influence neonatal nursing perceptions of family-centered care and developmental care practices	USA	Focus group/ interview	59 Nurs- es	N/A	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hendricks- Munoz	2013	Maternal and Neona- tal Nurse Perceived Value of Kangaroo Mother Care and Mater- nal Care Partnership in the Neo- natal Inten- sive Care Unit	USA	Qualitative	143 Mothers, 42 Nurs- es	<34 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hendricks- Munoz	2014	A Neonatal Nurse Training Program in Kangaroo Mother Care (KMC) Decreases Barriers to KMC Utilization in the NICU	USA	Prospective Cohort	30 Nurses	N/A	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Hennig	2006	Health pro- fessional's knowledge and practices about	Brazil	Cross sectional	148 Doctors and nurses, 11 Facili- ties	LBW: N/A cutoff	N/A	Clinical stability	0.59 of the professionals did use (stable and not intubated) as criteria and 0.30 related allowed contact even when newborn stable but intubated.	N/A	N/A	N/A	N/A	N/A
Hernandez Molina	1988	Bio-psycho- social risk factors in children under one year of age of mother kangaroo program of the instituto materno infantil, Bogota, 1987	USA	RCT	8 New- borns	Premature: N/A cutoff	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hill	2010	Keeping newborns warm: be- liefs, practic- es and po- tential for behaviour change in rural Ghana	Ghana	Focus group/ interview	635 Mothers, 14 Vil- lages	All ages	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Huang	2006	[Effect of very early kangaroo care on extra-uterine temperature adaptation in newborn infants with hypothermia problems]	Taiwan	RCT	164 Dyads	Full term	SSC	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Ibe	2004	A comparison of kangaroo mother care and conventional incubator care for thermal regulation of infants < 2000 g in Nigeria using continuous ambulatory temperature monitoring	Nigeria	Crossover	13 Newborns, 11 Mothers and female relatives	1200-1999g	SSC	After enroll- ment	Able to toler- ate handling without stress	12	N/A	N/A	N/A	N/A
Issah	2011	Maternal and neonatal survival and mortality in the Upper West Region of Ghana	Ghana	Prospective Cohort	695 New- borns, 5 Facilities	Premature: N/A cutoff, 588 LBW, 107 preterm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jang	2008	The Effect of Kangaroo Care on Weight and Stress Hor- mone (Corti- sol) in Prem- ature Infants	South Korea	RCT	31 New- borns	<35 weeks, <1800g	N/A	N/A	N/A	3	3	N/A	N/A	N/A
Johnson	2007	Factors influencing implementa- tion of kan- garoo hold- ing in a Spe- cial Care Nursery	USA	Focus group/ interview	17 Nurs- es	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Johnson	2007	The Mater- nal Experi- ence of Kangaroo Holding	Mid- Atlantic Region	Focus group/ interview	18 Mothers	N/A	N/A	N/A	N/A	≥1	N/A	N/A	N/A	N/A

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Johnston	2012	Alternative female kan- garoo care for proce- dural pain in preterm neonates: a pilot study	Canada	Random- ized cross- over	41 New- borns	28-37 weeks	SSC	30 min before heel lance proce- dure	N/A	≤1	2	N/A	N/A	N/A
Johnston	2003	Kangaroo	Canada	Random-	74 New-	32-36 weeks	SSC	30	Apgar> 6 at 5	0.7	1	N/A	N/A	N/A
		care is effec- tive in dimin- ishing pain response in preterm neonates		ized cross- over	borns, 3 Facilities			minutes before heel stick	min, un assisted breathing, no major congenital anomalies, no grade III or IV IVH, subsequent periventricular leukomalacia, not undergone surgery					
Johnston	2008	Kangaroo mother care diminishes pain from heel lance in very preterm neonates: a crossover trial	Canada	Random- ized cross- over	61 New- borns	28-31 weeks	SSC	≥15 min prior to heel lancing proce- dure	Apgar ≥ 6 at 5 minutes, un assisted breathing , no major congenital anomalies, no grade III or IV IVH or subsequent periventricular leukomalacia, not undergone surgery	0.5	N/A	N/A	N/A	N/A

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Johnston	2011	Paternal vs maternal kangaroo care for procedural pain in pre- term neo- nates: a randomized crossover trial	Canada	Random- ized cross- over	62 New- borns	28-36 weeks	SSC	At least 15 minutes before heel lance proce- dure	N/A	≤1	2	N/A	N/A	N/A
Kadam	2005	Feasibility of kangaroo mother care in Mumbai	India	RCT	89 New- borns	<1800g	SSC, EBF	N/A	Stable in cardio- vascular sta- tus	≥1	N/A	weight-gain 3 consecutive days, normal unassisted temperature, well breast-fed/spoon feeds, mother's confidence in baby care	N/A	N/A
Kaffashi	2013	An analysis of the kanga- roo care intervention using neona- tal EEG com- plexity: a preliminary study	USA	Prospective cohort	126 New- borns	Premature, Full term	SSC	N/A	N/A	N/A	56	N/A	N/A	N/A
Kambarami	1999	Kangaroo care for well low birth weight in- fants at Harare cen- tral hospital maternity unit - Zimba- bwe	Zimbabwe	Facility evaluation	613 Dyads	Preterm: N/A cutoff, <2000g	N/A	N/A	Well preterm infants able to suck and weighed ≤2001	N/A	N/A	N/A	N/A	N/A

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Kambarami	2002	Caregivers' perceptions and experi- ences of 'kangaroo care' in a developing country	Zimbabwe	Focus group/ interview	N/A Mothers	LBW:N/A cutoff,	N/A	N/A	The infants was nursed in incubators until there were stable and no longer required oxygen, then there were sent to KMC unit	N/A	N/A	Weighing 1000g	N/A	Health facility
Kambarami	1998	Kangaroo care versus incubator care in the management of well pre- term infants- a pilot study	Zimbabwe	Interven- tion	74 Dyads	Premature: N/A cutoff, <1600g	SSC	After identifying a well preterm infants based on the neonatologist visit	Able to suck, no need to special care, oxygen or medication	N/A	N/A	N/A	N/A	N/A
Karlsson	2012	Early skin-to- skin care in extremely preterm infants: thermal balance and care envi- ronment	Sweden	Pre-post	27 New- borns	<27 weeks	SSC	Within a few days after birth when stable, after 30 min of monitoring in incubator	Neo- neonatologist deems respir- atory, thermo- dynamically and thermal balance stable	≥1	N/A	N/A	N/A	N/A
Karlsson	1996	Skin to skin care: heat balance	Sweden	Prepost	9 New- borns	Full term	SSC	N/A	N/A	1	1	N/A	N/A	N/A
Kashaninia	2008	The effect of Kangaroo Care on behavioral responses to pain of an intramuscular injection in neonates	Iran	RCT	100 New- borns	Full term, Non LBW	SSC	10 minutes before proce- dure	N/A	N/A	N/A	N/A	N/A	N/A

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Keshavarz	2010	Effects of kangaroo contact on some physiological parameters in term neonates and pain score in mothers with cesarean section	Iran	RCT	160 Dyads	Full term	SSC	2 hours after C/S	Healthy baby after delivery	3	N/A	N/A	N/A	N/A
Kim	1999	Physiological Effects of Kangaroo Care(skin-to- skin care) in Small Pre- term Infants and Their Parents	N/A	Prospective Cohort	10 New- borns	<2000g	N/A	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Коо	2000	The Effects of Kangaroo Care on Body Weight, Physiologic Responses and Behavioral States in Premature Infants	N/A	RCT	32 New- borns	28.5-33.5 weeks	N/A	N/A	N/A	8	25	N/A	N/A	N/A
Kostandy	2008	Kangaroo Care (skin contact) reduces crying re- sponse to pain in pre- term neo- nates: pilot results	USA	Random- ized cross- over	10 Newborns	30-32 weeks	SSC	30 min before the baseline phase (heel stick)	No known congenital anomaly grade III or IV IVH; no history of surgery, drug exposure, any tissue breakdown or heel in-flammation	0.83	1	N/A	N/A	N/A
Kymre	2013	Balancing preterm infants' developmen- tal needs with parents' readiness for skin-to-skin	Sweden, Norway, Denmark	Focus group/ interview	18 Nurs- es	N/A	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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		care: A phe- nomenologi- cal study												
Kyoko	2006	Implementa- tion of Kan- garoo Care Immediately After Child- birth	Japan	Survey at one year	106 Mothers	N/A	N/A	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A
Lamy Filho	2008	Evaluation of the neonatal outcomes of the kangaroo mother method in Brazil	Brazil	Prospective Cohort	985 New- borns, 16 Facili- ties	500-1749g	SSC, EBF	N/A	Clinical stabil- ity	N/A	N/A	N/A	N/A	N/A
Lau	2007	Ethnic/racial diversity, maternal stress, lactation and very low birthweight infants	USA	Descriptive	163 Mothers	26-29 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lee	2011	The Effects of Kangaroo Care on Maternal Self-esteem and Prema- ture Infants' Physiological Stability	South Korea	Pre-post	34 Dyads	>32 weeks,1000- 2000g	SSC	After feeding	N/A	0.5	14	N/A	N/A	N/A
Lee	2012	Clinician perspectives on barriers to and op- portunities for skin-to- skin contact for prema- ture infants in neonatal intensive care units	USA	Focus group/ interview	69 HCPs, 11 Facili- ties	N/A	SSC	N/A	Determined by age, weight, res- piratory dis- tress, blood pressure, temperature, apnea, brady- cardia, oxygen desaturation events	N/A	N/A	N/A	N/A	N/A

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Lee	2007	Effects of Kangaroo Care on anxiety, maternal role confidence, and maternal infant attachment of mothers who delivered preterm infants	South Korea	Pre-post	43 Mothers	Premature: N/A cutoff,	N/A	N/A	N/A	N/A	4	N/A	N/A	N/A
Legault	1995	Comparison of kangaroo and traditional methods of removing preterm infants from incubators	Canada	RCT, pre- post, cross over	61 Dyads	Premature: N/A cutoff, 1000- 1800g	SSC	Once eligible: N/A defini- tion	<pre><1 respiratory pause or one episode of bradycardia in the past 5 days, started weight gain</pre>	0.5	1	N/A	N/A	N/A
Lemmen	2013	Kangaroo care in a neonatal context: parents' experiences of infor- mation and communica- tion of nurse- parents	Sweden	Focus group/ interview	15 Newborns, 12 Families	24-35 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Leonard	2008	Parents' Lived Experience of Providing Kangaroo Care to their Preterm Infants	South Africa	Focus group/ interview	6 Par- ents	Premature: N/A cutoff	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lerthamtewe	2000	The effects of kangaroo care on body temperature, body weight and maternal satisfaction in premature	N/A	RCT	30 New- borns	33-35 weeks PCA	N/A	N/A	N/A	1.5-2	N/A	N/A	N/A	N/A

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		infants												
Lima	2000	Feasibility, acceptability and cost of kangaroo mother care in Recife, Brazil	Brazil	Facility evaluation	114 New- borns	1000-1750g	SSC, EBF, FU	After stabiliza- tion	Unassisted breathing	N/A	N/A	N/A	N/A	Home and health facili- ty
Lincetto	1998	Impact of season and discharge weight on complications and growth of Kangaroo Mother Care treated low birth weight infants in Mozambique	Mozam- bique	Prospective Cohort	246 New- borns	<2000g	SSC, EBF,DC, FU	Stabi- lized health condi- tion, sucking reflex, ther- moregu- lation, mother's condi- tion enabling her to care for the LBW infant, cessa- tion of infant IV, oxygen, and photo- therapy, no feed- ing by NG tube	Same criteria as onset of SSC	>20	N/A	Weight ≥1500g, weight gain through 3 consecutive days	Twice weekly for 1500- 1700g, once week- ly for 1700- 2000g, and fortnightly for over 2000g babies	Health facility

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Lincetto	2000	Kangaroo mother care with limited resources	Mozam- bique	Facility evaluation	32 New- borns	≤1800g	SSC, EBF,DC, FU	As soon as possible after admission to all infants<18 00 g, irrespective of GA, place of birth, and health condition	N/A	N/A	N/A	Weight ≥1500g, weight gain for ≥ 3 con- secutive days	Twice a week until infant reached 2500 g	Health facility
Lizarazo- Medina	2012	The kanga- roo mothers' program: a simple and cost- effective alternative for protect- ing the premature newborn or low-birth- weight ba- bies	Colombia	Retrospec- tive cohort	374 New- borns	Premature and LBW:N/A cutoff	SSC	N/A	N/A	N/A	240	N/A	N/A	N/A
Ludington- Hoe	2000	Kangaroo care com- pared to incubators in maintaining body warmth in preterm infants	USA	RCT, pre/post	29 New- borns	26-35 weeks, 770-2710g	SSC, EBF	The KC period began once the infant had been trans- ferred from the incuba- tor to the mother who was sitting in an up- right chair beside the	N/A	2.5-3.83	1	N/A	N/A	N/A

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								incuba- tor						
Ludington- Hoe	2001	Kangaroo mother care during pho- totherapy: effect on bilirubin profile	USA	RCT	30 New- borns	30-35 weeks, <2500g	SSC	Once eligible: N/A defini- tion	N/A	1	10	N/A	N/A	N/A
Ludington- Hoe	1999	Birth-related fatigue in 34- 36-week preterm neonates: rapid recov- ery with very early kanga- roo (skin-to- skin) care	Colombia	Descriptive	6 New- borns	34-36 weeks	SSC, EBF	Immedi- ately after birth	N/A	6	1	N/A	N/A	N/A
Ludington- Hoe	2006	Neurophysiologic assessment of neonatal sleep organization: Preliminary results of a randomized, controlled trial of skin contact with preterm infants	USA	RCT	28 New- borns	28-32 weeks	SSC	Once eligible: N/A defini- tion	Apgar >6 at 5 min	2-3	1	N/A	N/A	N/A
Ludington- Hoe	2004	Randomized controlled trial of kan- garoo care: cardiorespir- atory and thermal	N/A	RCT, pre/post	24 New- borns	32-36 weeks	SSC, EBF	After pretest phase, determined by breast	No medication in the last 24 hours	3	1	N/A	N/A	N/A

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		effects on healthy preterm infants						feeding						
Ludington- Hoe	2005	Skin-to-skin contact (Kangaroo Care) anal- gesia for preterm infant heel stick	El Salvador	Random- ized cross- over	23 New- borns	<37 weeks	SSC	3 hours before heel stick	N/A	3	1	N/A	N/A	N/A
Lyngstad	2014	Does skin-to- skin contact reduce stress during dia- per change in preterm infants?	Norway	Random- ized cross- over	19 New- borns	28-34 weeks	SSC	N/A	N/A	N/A	2	N/A	N/A	N/A
Maastrup	2010	Extremely preterm infants tolerate skinto-skin contact during the first weeks of life	Sweden, Norway, Denmark	Pre-post	22 New- borns	<28 weeks	SSC	After pre-test	N/A	N/A	1	N/A	N/A	N/A
Maastrup	2012	Breastfeed- ing Support in Neonatal Intensive Care: A Na- tional Survey	Denmark	Facility evaluation	19 Facilities	N/A	SSC	18 out of 19 aimed within 24 h postpar- tum for stable preterm infant	N/A	N/A	N/A	N/A	N/A	N/A
Mahmood	2011	Effect of mother-infant early skin-to-skin contact on breastfeeding status: a randomized controlled trial	Pakistan	RCT	183 Dyads	≥37 weeks, ≥2500g	SSC, EBF	Once eligible: N/A defini- tion	No respiratory stress and weight >2500 g	≥0.75-2	30	N/A	N/A	N/A

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Mallet	2007	[Skin to skin contact in neonatal care: knowledge and expectations of health professionals in 2 neonatal intensive care units]	France	Focus group/ interview	21 Doc- tors, 100 Para- medical staff	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Marin Gabri- el	2010	Randomized controlled trial of early skin-to-skin contact: effects on the mother and the newborn	Spain	RCT	274 Dyads	35-42 weeks	SSC, EBF, FU	Immedi- ately after birth	No need to resuscitation or intubation, no meconium fluid	2	1	N/A	N/A	Home
Marin Gabri- el	2008	Evaluation of pain in a neonatal intensive care unit during endocrine-metabolic tests	Spain	RCT	54 New- borns	Premature: N/A cutoff	ssc	N/A	N/A	≤1	1	N/A	N/A	N/A
Martins	2008	Living in the other side of kangaroo method: the mother's experience	Brazil	Focus group/ interview	5 Moth- ers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
McMaster	2000	Kangaroo care in Port Moresby, Papua New Guinea	Papua New Guinea	Chart re- view, facili- ty evalua- tion	109 New- borns	<1500g	SSC	N/A	N/A	N/A	N/A	Baby fully breast fed, gained weight, moth- er fully confi- dent	N/A	Home
Messmer	1997	Effect of kangaroo care on sleep time for neonates	USA	Pre-post	20 Dyads	26-37 weeks, 750-1500g	SSC	After pre period	N/A	1	1	N/A	N/A	N/A

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Miles	2006	A controlled trial of skin- to-skin con- tact in ex- tremely preterm infants	UK	RCT	78 New- borns	<32 weeks	SSC	Once eligible: N/A defini- tion	not ventilated, no repeated apnea or bradycardia, not on inotropic support, a stable coreperipheral temperature gap of less than 2 degrees C	0.33	28	N/A	4 mo and 12 mo post-birth and 12 mo from term	Health facility
Miltersteiner	2003	Physiological responses of the Kangaroo Mother Position in low birth weight, spontaneous ventilating premature babies	Brazil	Pre-post	46 Dyads	24-37 weeks, <2000g	SSC, EBF	Once eligible: N/A defini- tion	One hour after feeding	1	Depends on moth- er's length of stay	N/A	N/A	N/A
Mitchell	2013	Does daily kangaroo care provide sustained pain and stress relief in preterm infants?	USA	RCT	54 New- borns	27-30 weeks, ≥1000g	SSC	5 days of life	N/A	≥2	5	N/A	N/A	N/A
Mitchell	2013	Effects of daily kanga- roo care on cardio- respiratory parameters in preterm infants	USA	RCT	38 New- borns	27-30 weeks, 1000-1500g	SSC	5 day of life	N/A	2	5	N/A	N/A	N/A

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Mohammed El-Nagger	2013	Effect of kangaroo mother care on premature infants' physiological, behavioral and psychosocial outcomes in Ain Shams maternity and Gynecological Hospital, Cairo, Egypt	Egypt	Pre-post	50 Dyads	Premature and LBW but N/A cutoff	SSC	Once eligible: N/A defini- tion	N/A	1	1	N/A	N/A	N/A
Monasterolo	1998	Kangaroo care in pre- term new- born infants admitted to a Neonatal Intensive Care Unit	Spain	Prospective Cohort	38 New- borns	Premature: N/A cutoff	SSC, EBF	N/A	N/A	1-8	N/A	N/A	N/A	N/A
Moon	2000	The Effects of Kangaroo Care on Anxiety and Confidence and Gratifi- cation of Mothering Role in Mothers of Low Birth Weight Infants	South Korea	RCT	30 New- borns	LBW:N/A cutoff	N/A	N/A	N/A	≥ 0.67	26	N/A	N/A	N/A
Moreira	2009	Kangaroo mother program and the relation- ship mother- baby: quali- tative re- search in a public ma- ternity of Betim city	Brazil	Focus group/ interview	8 Moth- ers	30-32 weeks, <2000g	SSC	Once eligible: N/A defini- tion	Weight gain and stabiliza- tion of the baby	N/A	N/A	Mother pre- pared to baby care, weight ≥1500 g, suction capac- ity, EBF	N/A	Health facility

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Morelius	2005	Salivary cortisol and mood and pain profiles during skin- to-skin care for an unse- lected group of mothers and infants in neonatal intensive care	Sweden	Pre-post	17 Dyads	33 weeks, 495- 2590g	SSC	N/A	N/A	1	2	N/A	N/A	N/A
Morelius	2012	Time of initiation of skin-to-skin contact in extremely preterm infants in Sweden	Sweden	Pop based surveil- lance	520 New- borns	<27 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Morgan	2011	Should Neo- nates Sleep Alone?	South Africa	Random- ized cross- over	16 Dyads	Full term	SSC	N/A	N/A	1	1	N/A	N/A	N/A
Muddu	2013	Knowledge and aware- ness about benefits of kangaroo mother care	India	Pre-post, qualitative	46 Dyads	28-37 weeks	N/A	After asking ques- tions from mothers as base- line knowled ge	N/A	1	1	N/A	N/A	N/A
Nagai	2010	Earlier versus later continuous Kangaroo Mother Care (KMC) for stable lowbirth-weight infants: a randomized controlled trial	Madagas- car	RCT	73 New- borns	<2500g	SSC, EBF	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Nagai	2011	Long-term effects of earlier initi- ated contin- uous Kanga- roo Mother Care (KMC) for low- birth-weight (LBW) in- fants in Madagascar	Madagas- car	RCT	73 New- borns	<2500g	SSC, EBF	As soon as possi- ble within 24 h GA or after com- pletely settled	Oxygen saturation, 0.95 or more, HR >100 bpm, RR <60 pm, capillary refilling time<3sec	N/A	N/A	N/A	N/A	N/A
Nanavati	2013	Effect of Kangaroo Mother Care Expressed Breast Milk Administra- tion on Pain Associated with Remov- al of Adhe- sive Tapes in Very Low Birth Weight Neonates: A Randomized Controlled Trial	India	RCT	50 New- borns	LBW:N/A cutoff	SSC	15 min before removal of tape	N/A	0.25	N/A	N/A	N/A	N/A
Ndiaye	2006	[Efficiency of kangaroo care on thermoregulation and weight gain of a preterm newborn cohort in Dakar]	Senegal	Chart review	56 New- borns	Premature: N/A cutoff, <2000g	SSC, EBF, FU	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Neu	2004	Kangaroo care: is it for everyone?	USA	Focus group/ interview	37 Mothers	31-34 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Neu	2010	Maternal Holding of Preterm Infants During the Early Weeks After Birth and Dyad Interaction at Six months	USA	RCT	87 Dyads	32-34 weeks	SSC	Four weeks after birth of infant	N/A	≥1	N/A	N/A	Twice a week for 2 weeks followed by weekly visit for 6 weeks	Home and health facili- ty

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Neu	1999	Parents' perception of skin-to- skin care with their preterm infants re- quiring as- sisted venti- lation	N/A	Focus group/ interview	8 Moth- ers, 1 Father	Premature: Mother, Father	SSC	N/A	N/A	1	2	N/A	N/A	N/A
Neu	2014	Effect of holding on co-regulation in preterm infants: A randomized controlled trial	USA	RCT	79 New- borns	32-35 weeks	N/A	N/A	N/A	1	3 at base- line & week 2 & week 9	N/A	Once a week for 8 weeks	Home
Neu	2013	Influence of holding practice on preterm infant devel- opment	USA	RCT	87 Dyads	32-35 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nguah	2011	Perception and practice of Kangaroo Mother Care after dis- charge from hospital in Kumasi, Ghana: a longitudinal study	Ghana	Prospective Cohort	195 Dyads	1000-2000g	SSC, EBF, FU	After admis- sion in hospital and if mother was willing	no life threat- ening condi- tions or major congenital ab- normalities or requiring ICU	N/A	N/A	N/A	1, 2, 3, and 4 weeks after dis- charge	Health facility
Niela-Vilen	2013	Early physical contact between a mother and her NICU-infant in two university hospitals in Finland	Finland	Prospective cohort, qualitative	170 Dyads, 381 Staff	All NICU new- borns	N/A	Immedi- ately after birth	N/A	N/A	N/A	N/A	N/A	N/A

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Nimbalkar	2013	Kangaroo Mother Care in reducing pain in pre- term neo- nates on heel prick	India	RCT	50 New- borns	32-36 weeks, <2500g	SSC	15 minutes before heel stick	Vitally stable, unassisted breathing or on CPAP, no neurological signs, not received anal- gesics or sedatives within last 24 h	0.5	1	N/A	N/A	N/A
Nimbalkar	2012	Reduced duration of cpap in pre- term babies receiving kangaroo care within an hour of birth - Ran- domized trial	India	RCT	16 New- borns	26-32 weeks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nimbalkar	2014	Effect of early skin-to-skin contact following normal de-livery on incidence of hypothermia in neonates more than 1800g: a randomized control trial	India	RCT	100 New- borns	Premature: N/A cutoff, ≥1800g	SSC, EBF	After immediate post delivery care was done, at about 30min-1hr after birth	no need for resuscitation measured at birth	≥1	1	N/A	N/A	N/A

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Nirmala	2006	Kangaroo Mother Care: Effect and percep- tion of mothers and health per- sonnel	India	Qualitative	50 Dyads	Premature: N/A cutoff, 1070- 2460g	N/A	N/A	N/A	≥0.5	N/A	N/A	N/A	N/A
Nyqvist	2008	Application of the baby friendly hospital initiative to neonatal care: suggestions by Swedish mothers of very preterm infants	Sweden	Focus group/ interview	13 Mothers	<32 weeks	SSC, DC, FU	N/A	N/A	N/A	N/A	no apnea, unassisted normal tem- perature, partial oral feeding, ade- quate weight gain, no ill- ness, parental' confidence in caring infants, ability to perform tube and/or cup feeding	N/A	Home at initial, then clinic
Ohgi	2002	Comparison of kangaroo care and standard care: behavioral organization, development, and temperament in healthy, lowbirth-weight infants through 1 year	Japan	Interven- tion	53 New- borns	1501-2099g	SSC, EBF, FU	As soon as they could tolerate handling outside incuba- tor	As soon as they could tolerate han- dling outside incubator	N/A	N/A	N/A	6 and 12 mon. CA	Home

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Okan	2010	Analgesic effects of skin-to-skin contact and breastfeeding in procedural pain in healthy term neonates	Turkey	RCT	108 New- borns	Full term	SSC	15 minutes before heel stick	N/A	≤1	1	N/A	N/A	N/A
Ortiz	2006	Attachment Relationship Between Adolescent Mothers and Their 'Kanga- roo' Babies'	Colombia	Prospective Cohort	40 Dyads	All ages	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ortiz	2006	Attachment relationships between adolescent mothers and their 'kanga- roo' babies	Colombia	Retro- spective cohort	40 Dyads	Premature: N/A cutoff, <2200g in KMC group, Full term in Control group	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Health facility

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Park	2014	Practical application of kangaroo mother care in preterm infants: clinical char- acteristics and safety of kangaroo mother care	South Korea	Intervention	31 New-borns	25-32 weeks	SSC, EBF	No apnea, none or self limiting (3 apnea = 1 h), brady-cardia, none or > 85– 100 beats/mi n with self-recovery, desaturation, none or = 0.85 with self-recovery and/or FiO2 = 0.4], clinically acceptable blood pressure and others (no arterial line, no chest tube, no intensive phototherapy and no sudden deterioration in condition within	The same as SSC onset criteria	0.5-1.5	1–2 times per week until the transition	N/A	N/A	N/A

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Parmar	2009	Experience with Kanga- roo mother care in a neonatal intensive care unit (NICU) in Chandigarh, India	India	Retrospec- tive cohort	135 New- borns	26-37 weeks, 550-2500g	SSC	N/A	Out of critical illness	N/A	N/A	N/A	N/A	N/A
Pattinson	2006	Does kanga- roo mother care save lives?	South Africa	Chart re- view	78 Facili- ties	1000-1999g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pattinson	2005	Implementa- tion of kan- garoo moth- er care: a randomized trial of two outreach strategies	South Africa	RCT	34 Facili- ties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pejovic	2013	Unexpected collapse of healthy newborn infants: Risk factors, supervision and hypothermia treatment	Sweden	Case con- trol, chart review	26 New- borns	≥35 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Penalva	2006	Descriptive study of the clinical and nutritional profile and follow-up of premature babies in a Kangaroo Mother Care Program	Brazil	Descriptive, chart re- view	70 New- borns	mean 32.5 weeks, mean 1560g	SSC, EBF, FU	Around 14 days	N/A	24	11.5; mean	N/A	12 mon.	Health facili- ty
Phillips	2012	Prevention of postpar- tum smoking relapse in mothers of infants in the neonatal intensive care unit	USA	RCT	54 Mothers	All NICU new- borns	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Priya	2004	Kangaroo care for low birth weight babies	India	Crossover	30 Dyads	LBW:N/A cutoff	SSC	After the routine care was observed and data were collected	N/A	2	2	N/A	N/A	N/A
Quasem	2003	Adaptation of kangaroo mother care for commu- nity-based application	Bangladesh	Focus group/ interview	35 Mothers	All ages	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rajai	2012	Comparison of effect of kangaroo care and mother holding on sleep and waking states of preterm neonates	Iran	RCT, Pre- post	70 New- borns	32-37 weeks	SSC	After pre- inter- vention period	N/A	1.16	N/A	N/A	N/A	N/A
Ramanathan	2001	Kangaroo Mother Care in very low birth weight infants	India	RCT	28 New- borns	<1500g	N/A	Once eligible: N/A defini- tion	Cardio- pumon.ary and tempera- ture stability	≥4	N/A	1401 g, GA ≥34 weeks, mothers con- fidence to go home, weight gain, no medi- cation or illness, and EBF	N/A	N/A
Reynolds	2013	Parental presence and holding in the neo- natal inten- sive care unit and associa- tions with early neuro- behavior	USA	Prospective Cohort	81 New- borns	≤30 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roberts	2000	A comparison of kangaroo mother care and conventional cuddling care	Australia	RCT	30 Dyads	≥30 weeks, SGA	SSC	Once eligible: N/A defini- tion	N/A	2	5	N/A	N/A	N/A

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Rodrigues	2009	Trial gain of weight and hospital length stay of the low birth weight preterm infant in assistance for kangaroo mother care	Brazil	Chart re- view	120 New- borns	<37 weeks, <2000g	SSC	Once eligible: N/A defini- tion	N/A	2	Depends on moth- er's length of stay	Achieve more than 2000g	N/A	N/A
Rodriguez	2007	Good short- term out- comes of kangaroo mother care in infants with a low birth weight in a rural South Afri- can hospital	South Africa	Descriptive	87 Dyads	1000-2500g	N/A	Once eligible: N/A defini- tion	Without oxygen more of day, hemodynamically stable, no IV fluids	N/A	N/A	Mother comfortable, infant gaining weight (154 g/week).	N/A	N/A
Rojas	2003	Somatic growth of preterm infants during skin-to-skin care versus traditional holding: a randomized, controlled trial	USA	RCT	60 New- borns	≤32 weeks, ≤1500g	SSC	Once eligible: N/A defini- tion	Hemo- dynamically stable	8	4	N/A	N/A	N/A
Roller	2005	Getting to know you: mothers' experiences of kangaroo care	USA	Focus group/ interview	10 Mothers	32-37 weeks	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sá	2010	Interper- sonal rela- tionships between professionals and mothers of premature from Kanga- roo-Unit	Brazil	Focus group/ interview	10 Mothers, 7 HCPs	Premature: N/A cutoff	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Sacks	2013	Neonatal care in the home in northern rural Hondu- ras: a quali- tative study of the role of traditional birth attend- ants	Honduras	Focus group/ interview	N/A TBA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Saeedi	2011	effect of kangaroo care method on the pain intensity of vaccination in newborns	Iran	RCT	60 New- borns	Full term, 2500- 4000g	SSC	≥24h after birth, ≥30 min since last feeding, 2 min before vaccination	Apgar=7-11 at 1 min	0.5	1	N/A	N/A	N/A
Saeidi	2010	Kangaroo mother care for infantile colic: A ran- domized clinical trial	Iran	RCT	48 New- borns	Full term, >2500g	N/A	At first the parents received a dairy to report the initial assess- ment of infant for 2 days, then they were visited in clinic, and then they received another Diary for report- ing KMC	Infants were term	≥2	7	N/A	N/A	N/A

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								activities for 7 next days						
Saeidi	2011	Use of "kangaroo care" to alleviate the intensity of vaccination pain in newborns	Iran	RCT	60 New- borns	2500-4000g	SSC	30 min before vaccina- tion	N/A	0.5	1	N/A	N/A	N/A
Sajedi	2007	The effect of Kangaroo Care on physiologic responses to pain of an intramuscular injection in neonates	Iran	RCT	100 New- borns	37-42 weeks, 2500-4000g	SSC	10 min before injec- tion, when infant in a quiet and alert state	Apgar ≥8 at 1 min	≥0.21	1	N/A	N/A	N/A
Sakaki	2009	An investigation of the risk factors for infection with Methicillin-Resistant Staphylococcus Aureus among patients in a neonatal intensive care unit	Japan	Prospective Cohort	923 New- borns	All ages	SSC	N/A	N/A	≥1-2	N/A	N/A	N/A	N/A

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Samra	2012	The effect of kangaroo mother care on the duration of phototherapy of infants readmitted for neonatal jaundice	Egypt	Interven- tion	50 New- borns	35-40 weeks	SSC	Once eligible: N/A defini- tion	N/A	≥3	Every day until photo- therapy stopped	N/A	N/A	N/A
Santos	2013	Maternal perception of the skin to skin contact with premature infants through the kangaroo position	Brazil	Focus group/ interview	12 Mothers	Premature and LBW:N/A cutoff,	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scher	2009	Neurophysiologic assessment of brain maturation after an 8-week trial of skinto-skin contact on preterm infants	USA	Prospective Cohort	134 New- borns	28-32 weeks, >1000g, Full term	SSC	N/A	No encephalopathy or IVH > grade II or meningitis, or congenital brain malformations. No mothers' substance abuse.	1.5	5 days per week dur- ing 8 weeks	N/A	N/A	N/A
Schneider	2012	Cerebral motor func- tion in very premature- at-birth adolescents: a brain stim- ulation ex- ploration of kangaroo mother care effects	Colombia	RCT	48 Ado- lescents	Premature: N/A cutoff, Full term	SSC, DC, FU	Immedi- ately after birth	Tolerating physical ma- nipulation, able to suck and swallow- ing	N/A	N/A	Immediately after brief adaptation to KMC position	1 year	Health facility
Shu-guang	2012	Influence of Kangaroo care in im- proving milk intake and immune status for	China	RCT	80 New- borns	Premature: N/A cutoff	N/A	N/A	N/A	N/A	N/A	N/A	7, 14, and 28 days	N/A

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		premature children												
Sikorová	2012	Verifying the benefits of kangaroo mother care - A pilot study	Czech Republic	RCT, Focus group/ interview	33 New- borns	<1800g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silva	2010	Factors which influence weaning in preterm infant	Brazil	Retrospec- tive cohort	89 Dyads	<37 weeks, <2500g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silva	2008	Perceptions and neonatal care behav- ior of wom- en in a Kan- garoo- mother Care Program	Brazil	Focus group/ interview	5 Dyads	Premature: N/A cutoff, <1000- 1550g	SSC	Once eligible: N/A defini- tion	N/A	≤24	Depends mother's length of stay	N/A	N/A	N/A
Singh	2012	Utilization of postnatal care for newborns and its association with neonatal mortality in India: an analytical appraisal	India	Case control	145662 New- borns, 810204/ Mothers	All ages	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sloan	2008	Community- based kanga- roo mother care to pre- vent neona- tal and in- fant mortali- ty: a ran- domized, controlled cluster trial	Bangladesh	Cluster RCT	4165 New- borns, 39888 Mothers	All ages	SSC	N/A	N/A	N/A	data avail- able for first 2 days of life	N/A	N/A	N/A

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Sloan	1994	Kangaroo mother method: randomized controlled trial of an alternative method of care for stabilized low-birth weight in- fants	Ecuador	RCT	300 New- borns	<2000g	SSC	Once tolerat- ing food and weight stabi- lized	Temperature between 36.5- 37.0 degrees C for 24h, tolerance of food, stable weight	N/A	N/A	N/A	1, 1.5, 2, 3, 4, 5, 6 mon. of life	Home and health facili- ty
Smith	2003	Heart period variability of intubated very-low-birth-weight infants during incubator care and maternal holding	USA	Random- ized cross- over	14 New- borns	24-30 weeks, 600-1500g, intu- bated	SSC	When the infant weighed at least 750g	≥Weight 750g	2	2	N/A	N/A	N/A
Solomons	2012	Knowledge and attitudes of nursing staff and mothers towards kangaroo mother care in the east- ern sub- district of Cape Town	South Africa	Cross sec- tional	30 Mothers, 15 Nurs- es	<2500g	N/A	0.60 of mothers within 24 hours after birth	N/A	N/A	N/A	N/A	N/A	N/A
Stikes	2013	Applying the plan-do- study-act model to increase the use of kan- garoo care	USA	Focus group/ interview	56 Nurs- es	N/A	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Strand	2014	Kangaroo mother care in the neo- natal inten- sive care unit: staff attitudes and beliefs and opportuni- ties for par-	Sweden	Facility evaluation	126 Staff	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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		ents												
Subedi	2009	Kangaroo mother care for low birth weight ba- bies: A pro- spective observation- al study	Nepal	Prospective Cohort	60 New- borns	1200-2000g	SSC, EBF, FU	Once eligible: N/A defini- tion	N/A	N/A	N/A	Weight gain ≥10gm/kg/day for ≥3 consecutive days, stable and maintaining vitals, no sepsis, mothers confident caring babies at home	Weekly until 2500g	N/A
Suman	2008	Kangaroo mother care for low birth weight in- fants: a randomized controlled trial	India	RCT	206 New- borns	<2000g	SSC, EBF, FU	As soon as the baby was stable	no critically ill requiring ventilator or ionotropic support, no chromosomal or life threatening congenital anomalies, no requiring transfer, no critically ill mothers	as long as possible during the day and night	N/A	Weight gain of 10-15 g/kg/d for 3 consecu- tive days, feeding well, maintaining temperature mother confi- dent of caring baby	Weekly until PMA of 40 weeks in preterm or until a weight of 2500 g in term SGA babies	Health facility
Suzuki	2013	Effect of early skin-to- skin contact on breast- feeding	Japan	Prospective cohort	470 Dyads	N/A	SSC, EBF, FU	Immedi- ately after birth	N/A	1-1.5	1	N/A	1 mon.PGA	Home

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Sylla	2011	Towards better care for preterm infants in Bamako, Mali	Mali	Prospective cohort, no control	480 New- borns	Premature: N/A cutoff, <2000g	SSC, DC, FU	Once eligible: N/A defini- tion	Clinically stable (auton- omous breathing)	N/A	N/A	As soon as weight gain and parents' independent	Initially twice a week, then once a week until term (40wks), then mon.till 6mo, then every 2 mon. until 12-18 mon.	Health facili- ty
Takahashi	2011	Comparison of salivary cortisol, heart rate, and oxygen saturation between early skin-to-skin contact with different initiation and duration times in healthy, full-term infants	Japan	Intervention	108 New- borns	Full term	SSC	Immediately (≤5min) after birth in one group, after initial newborn exam (>5min after birth) in other group	N/A	N/A	N/A	N/A	N/A	N/A
Tallandini	2006	Kangaroo Mother Care and mother- premature infant dyadic interaction	Italy	Interven- tion	40 Dyads	<1800g	SSC	N/A	N/A	≥1	N/A	Sufficient physiological stability	N/A	N/A
Tenório	2010	Evaluation of physiological parameters in preterm newborns with low weight before and	Brazil	Pre-post	24 New- borns	<24-36 weeks, <2500g	N/A	N/A	N/A	0.33	3	N/A	N/A	N/A

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		after applica- tion of the kangaroo mother care												
Tessier	1998	Kangaroo mother care and the bonding hypothesis	Colombia	RCT	488 New- borns	<2001g	SSC, DC, FU	Once adapted to extra- uterine life and able to breast- feed	Adapted to extra-uterine life	N/A	N/A	Weight gain ≥20 g /d, ≥ 1700 g	Weekly until term (40 weeks GA)	Health facili- ty
Tessier	2009	Kangaroo Mother Care, home environment and father involvement in the first year of life: a randomized controlled study	Colombia	RCT	338 Dyads	2001g	SSC, DC, FU	Prema- ture infant adapted to extra- uterine life and able to breast- fed	The same as SSC onset criteria	N/A	N/A	Premature infant adapted to extra-uterine life and able to breastfeed	Original RCT included weekly visits until 40 wks GA, then inter- view/evalu ation at 9- 12 mon.	Health facility

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Tessier	2003	Kangaroo Mother Care: A method for protecting high-risk low-birth- weight and premature infants against de- velopmental delay	Colombia	RCT	431 Dyads	Premature: N/A cutoff, ≤1800g	SSC, DC, FU	Premature infant has adapted to extra- uterine life and is able to breast- feed	The same as SSC onset criteria	N/A	N/A	The same as SSC onset criteria	followed daily until gaining ≥20g/day then weekly until term (40wks GA), then interview/evalu ation at 12 mon.	Health facility
Thukral	2012	Early skin-to- skin contact and breast- feeding behavior in term neo- nates: A randomized controlled trial	India	RCT	41 Dyads	Full term	SSC, EBF, FU	Immedi- ately after birth	N/A	2	1	N/A	N/A	Health facility
Toma	2003	Kangaroo Mother Care: the role of health care services and family net- works in a successful program	Brazil	Focus group/ interview	14 Mothers, 7 Fa- thers	Premature: N/A cutoff, 1150- 2300g	N/A	Ranged from 3 to 39 days of life	N/A	N/A	N/A	Clinical stability	Until get 2500 g	Home and health facili- ty
Toma	2007	Maternal perception of low birth weight babies before and following the implementation of the Kangaroo Mother Care in a public hospital, in the city of São Paulo, Brazil	Brazil	Focus group/ interview	41 Mothers	<2000g	N/A	On mean 18 days	N/A	N/A	N/A	Knowledge with breast- feeding, gain weight	15 days after the discharge, till 6 mon. after dis- charge	Health facility

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision*	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Tornhage	1999	First week kangaroo care in sick very preterm infants	Sweden	Pre-post	17 New- borns	24-30 weeks	N/A	N/A	When infant can tolerate handling	≥1	N/A	N/A	N/A	N/A
Tuoni	2012	Kangaroo Mother Care: four years of experience in very low birth weight and preterm infants	Italy	Retrospec- tive cohort	213 New- borns	Premature: N/A cutoff, 1500g	SSC	Once eligible: N/A defini- tion	Stability of vital function – nor more definition	≥1	N/A	N/A	N/A	N/A
Undefined author** Save the Children	2011	Scaling Up Kangaroo Mother Care, Report of Country Survey Findings	Ethiopia, Malawi, Mali, Mozam- bique, Nigeria, Tanzania, Uganda, Bolivia, Indonesia, Nepal, Vietnam	Facility evaluation	12 Countries	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Van Zanten	2007	The kanga- roo method is safe for premature infants un- der 30 weeks of gestation during venti- latory sup- port	Nether- lands	Pre-post	34 New- borns	25-30 weeks	N/A	N/A	N/A	≥1	N/A	N/A	N/A	N/A
Vargas Gar- cía	2012	Most frequent diseases in newborns of the kangaroo program of Clínica Universitaria Bolivariana in Medellin from June to December 2009	Bolivia	Chart re- view	86 New- borns	<37 weeks, <2500g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Vesel	2013	Promoting skin-to-skin care for low birth weight babies: findings from the Ghana Newhints cluster-randomized trial	Ghana	Cluster RCT	15615 New- borns, 98 Zones	All ages	SSC	N/A	N/A	N/A	N/A	N/A	9 weekly visit in last 6 mon. of study	Home
Wahlberg	1992	A retrospective, comparative study using the kangaroo method as a complement to the standard incubator care	Sweden	Retrospec- tive cohort	66 Dyads	Premature: N/A cutoff	SSC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Waiswa	2010	'I never thought that this baby would sur- vive; I thought that it would die any time': perceptions and care for preterm babies in eastern Uganda	Uganda	Focus group/ interview	30 Mix of HCWs and mothers, 16 Facili- ties	Premature: N/A cutoff	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wallin	2005	Staff experi- ences in implement- ing guide- lines for Kangaroo Mother Care - A qualita- tive study	Sweden	RCT, Focus group/ interview	45 Staff at 4 facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Author	Year	Title	Country	Study design	Sample size	Newborns Characteristics	KMC components	Onset of SSC	Stability criteria for KMC initia- tion	Hours per day of KMC pro- vision	# of days of KMC provision*	Discharge criteria for Kangarooed baby	Follow-up duration	Follow-up location
Weller	2002	Longitudinal assessment of pituitary-thyroid axis and adrenal function in preterm infants raised by 'kangaroo mother care'	Colombia	RCT	87 New- borns	<37 weeks, <2001g	SSC, DC, FU	N/A	N/A	N/A	N/A	As soon as no infections, regardless of weight or GA	Daily until weight gain ≥20g/day	Health facili- ty
Whitelaw	1988	Skin to skin contact for very low birth weight infants and their moth- ers	UK	RCT	71 Newborns, 63 Mothers	<1500g	SSC	Once eligible: N/A defini- tion	Unassisted breathing if infant in the trial became unwell, trial was discon- tinued until infant stable again	N/A	N/A	N/A	6 mon. for all infants, if still breastfeed- ing, lacta- tion dura- tion as- sessed at 9 and 12 mon.	Health facility
White-Traut	2012	Frequency of Premature Infant En- gagement and Disen- gagement Behaviors During Two Maternally Adminis- tered Inter- ventions	USA	RCT	26 Dyads	Premature: N/A cutoff	SSC	N/A	≥1000 grams and assessed as clinically stable	1.5	3 hours/ week	N/A	N/A	N/A
Wieland	1995	Skin-to-skin care with 39 preterm infants	Germany	Prospective Cohort	39 New- borns	25-32 weeks, 740-2125g	N/A	10 days post natal age (4- 40 day)	N/A	N/A	N/A	N/A	N/A	N/A
Wobi**	2010	Report on the Kanga- roo Mother Care Project at Komfo Anokye Teaching Hospital in Kumasi, Ghana	Ghana	Facility evaluation	2 Facilities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Worku	2005	Kangaroo mother care: a random- ized con- trolled trial on effective- ness of early kangaroo mother care for the low birth weight infants in Addis Ababa, Ethiopia	Ethiopia	RCT	123 New- borns	<2000g	SSC, EBF	Immedi- ately after birth	No congenital anomalies; healthy moth- er	N/A	N/A	Stable tem- perature, stabilized cardio- vascular sta- tus, ability to suck, good general condi- tion	N/A	N/A
Xuefen	2013	Effect of Kangaroo care on diminishing neonatal pain during heel lancing	China	RCT	60 New- borns	37-42 weeks, 2500-4000g	N/A	Once eligible: N/A defini- tion	N/A	N/A	N/A	N/A	N/A	N/A

bpm: beat per minute; CA: corrected Age; CHW: community health workers; DC: early discharge from facility; D/W: days/week; EBF: exclusively or near exclusively breast feeding; FU: follow up after discharge;

HCP: health care professionals; HCW: health care worker; HR: heart rate; IV: intravenous; IVH: intra ventricular hemorrhage; KMC: kangaroo mother care; LBW: low birth weight; min: minutes; mon.: months;

N/A: undefined or not available; NG tube: naso-gastric tube; PCA: post cenceptional age; PGA: post gestational age; PMA: post menstrual age; RR: respiratory rate; SSC:skin-to-skin contact; TBA: traditional birth attendance

^{*} Number of hours per day and number of days of KMC provision were amount of KMC provision promoted by researchers not truly observed.

^{**} Program report