**ORIGINAL ARTICLES D – K**

Dabrowski, G.A. 2007. Skin-to-skin contact. Giving Birth Back to Mothers and Babies. Nursing for Women’s Health, 11(1), 64-71. A clinical article that relates some of the benefits of KC to Breastfeeding and identifying mother’s milk scent (see Mizuno et al. 2004 on this bib), and then explained how they went about implementing KC during Cesarean section. They say their practice evolved to this, first starting with birth KC for fullterms and that increased so much that health care members began to notice that “these families appeared to be in a birth experience uniquely theirs, distant from technology and interventions. Mothers engaging in skin-to-skin contact reported a sense of being cocooned with their newborn and an inexplicable sense of the natural progression of motherhood.” (pg. 69) Parents feel honored to be the first faces for their newborn to see and then mothers demonstrated additional confidence and eagerness to initiate BF earlier. But nurses still had concern about thermoregulation. Implementation of Birth KC began with presentation of benefits of KC, videos, posters to reinforce KC concept. Greatest barrier to birth KC implementation was completion of nursing tasks (ID, measurements, bathing, eye prophylaxis, Vit. K) but they were encouraged to defer bathing until 4 hours after temperature regulation had occurred. Shared AAP guidelines and this helped defer newborn weights. Then, over time, separation after C/S occurred. Moms have baby for completion of C/S and through post-anesthesia recovery in a private mom/baby room. Docs so impressed with intimacy of family-centered experience and that babies were so alert and tempting to breastfeed when transferred from surgery to post-anesthesia room. Neonatologists still concerned about temperature in C/S babies, and soon learned that KC during immediate post-anestheisa recovery period after cesarean birth not only achieved thermoregulation but did so more rapidly than did newborns under radiant warmer (pg. 70). Explain benefits of Birth KC to mothers during prenatal visits,expectant parent classes, and upon admission to intrapartum. **Fullterm, Clinical, implementation, Birth KC, Cesarean KC, maternal feelings, infant temperature, BF readiness.** Not on lists yet.

Daga, S.G., & Shinde, S.B. (1987). Mother participation in NICU. ???

Daga, S.G., & Daga, A.S. (1989). Reduction in neonatal mortality with simple interventions. Journal of Tropical Pediatrics, 35, 191-194. **Mortality**

Dala Sierra, E., Pineda Barahona E., Banegas R.M. (1994). Experiencia madre Canguro (Kangaroo Mother Experience. Rev Med. Hondur 62, 43-46. **RCT SPANISH**

Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, Bernis L. 2005. Evidence-based, cost-effective interventions: how many newborn babies can we save? Lancet 365, 977-988. READ AND PUT ON ARTICLE.

Darmstadt G, Black R, Santosham M. 2000. Research priorities and postpartum care strategies for the prevention and treatment of neonatal infections in less developed countries. Pediatric Infectious Disease J. 19, 739-750.

This article speaks to the importance of adapting KMC for use in the community and to prevent infection.  **Infection, community KMC, 3rd world GET THIS ARTICLE ANDPUT IN FILES.**

Darmstadt GL, Kumar V, Yadav R, Singh V, Singh P, Mohanty S, Baqui AH, Bharti N, Gupta S, Misra RP, Awasthi S, Singh JV, Santosham M, Saksham Study Group. 2006. Introduction of community-based skin-to-skin care in rural Yttar Pradesh, India. Journal of Perinatology, August 17, vol 26(10), 597-604. Descriptive study portion of a cluster randomized controlled trial with 3 interventions: control group (government providers and Nutition advisors), Essential care group (got nutrition advisor and taught KMC), and essential care (with kmc) + THERMOSPOT for temperature measurements. Gave KMC for variable lengths of time. Maternal (axillary when not in KMC), newborn (axillary) and ambient temperatures on day one of life (mean = 17 hours postbirth) in the home in where community based KMC was introduced in India..Globally 2/3 of women deliver at home. 733 LBW, 971 fullterm were studied. 77% of moms gave KMC usuallyl or almost always, 855 of moms with LBW dgave KMC. Hypothermia (<36.5) was high in LBW (49.2% 361/733) and normal birthweight (43% or 418/971). If ambient temp was <20 mean infant body tem was lower than when in ambient temps>20C. Among hypothermic newborns, 42% (331/78) of their moms had lower tem (R=-34-37 and was6.7 to 0.1C different from oral temperature). Acceptance of KMC was nearly universal at one month postpartum, No adverse events during KMC, KMC prevented hypothermia and protect baby from evil spirits and made babies more content**. Descriptive, Community KMC, fullterm, LBW birth KC, temperatures, acceptance of KMC, home KC, hypothermia, content, evil spirits, duration, implememtation** .

Davanzo R. 2004. Newborns in adverse conditions: Issues, challenges, and interventions. J. Midwifery & Women’s Health 49 (4 Suppl 1), 29-35. Review of evidence of interventions to help newborn infants in developing countries. Exclusive breastfeeding, KMC, newborn resuscitation, and infant massage are encouraged and “have important complementary roles in providing health care to newborn infants in adverse conditions.” **Review, developing countries,infant massage, birth KC.**

Davanzo, R. (1993). Care of the low birth weigh infants with the kangaroo mother method in developing countries. Guildelines for health workers. Bureau for International Cooperation in Maternal and Child Health, WHO Collaborating Center for Maternal and Child Health,Instituto per L'Infanzia, Via dell'Instrud 65/1, 34137 Triest, Italy. **Guidelines**

Davanzo, R., & Cattaneo, A. (1995). The kangaroo mother method. The Kangaroo, 4(1)July: p. 6-9. This is a review of Sloan (Lancet, 1994) and Charpak (Pediatrics 1994) articles with a commentary related to the recommending Kangaroo Care for implementation on a global basis. The Kangaroo is a journal published by the Bureau for International Cooperation in Maternal and Child Health and is available by writing to the address listed in Davanzo 1993. **Implementation, Review**

De Chateau P. (1979). Effect of hospital practices on synchrony and the development of the infant-parent relationship. Seminars in Perinatology, III(1), 45-60. I think this is a report of practices, not a study or report of KC. We will check this out. **Fullterm, synchrony**

De Chateau P, Wiberg B. (1977a). Long-term effect on mother-infant behaviour of extra contact during the first post partum hour. I. First observations at 36 hours. Acta Paediatrica Scand 66,137-144.**FULLTERM, KCBF, RCT, Early KC**

De Chateau P, Wiberg B. (1977b) Long-term effect on mother-infant behaviour of extra contact during the first hour post partum. II. A follow-up at three months. Acta Pediatrica Scand 66,145-151.Fullterm primip moms given 15-20 min suckling and KC during 1st hr. after delivery vs control (infant taken to nursery)had sig. diff behav at 36 hrs and 3 months postbirth during free play. KC moms kissed,looked en face more and babies smiled more and cried less frequently. A greater proportion of KC moms were still BF at 3 months. Influence of KC was more pronounced in boy-mom than girl-mom pairs. Interviews revealed no diff in maternal perception of 1st week at home,infant sleeping at 3 months was same,same # had had colic and meds for colic. KC infants given night feeds twice as long, fewer reported problems with night feeding in KCs. Control moms reported more difficult adaptation to infant and needed home help longer (14.5 vs 7.6 days).**FULLTERM, KCBF, BF at 3 months, maternal behavior, maternal perception, infant smile/crying, RCT, EARLY KC**

De Chateau P, Wiberg, B. (1984). Long-term effect on mother-infant behavior of extra contact during the first hour postpartum. Part III: Follow-up at one year. Scand J Soc Med, 12: 91-103. 15-20 minutes of KC during BF was given to moms and **FULL TERM** babies and compared to crib held infants. At 1 year, KC moms held and touched infants more frequently, talked more often positively to infant, returned to employment to a lesser extent, and had a greater proportion of infants who were sleeping in room of their own. In 4/5 parts of Gessell Development Schedule, KC babies were ahead of controls. No differences between groups on Vineland Social Maturity Scale and the Cesarec Marke Personality Scheme. KC moms breast fed 2.5mos. more. **Fullterm, RCT, Early KC, KCBF, Development**

de Leeuw, R. (1986). The kangaroo method. Vraagbak: A Quarterly for Development Workers, 14(4), 50-58. **SCANDINAVIAN LANGUAGE**

de Leeuw R (1987). The kangaroo method. Ned Tijdschr Geneeskd, 131(34), 1484-1487. **(DUTCH**). KC was started at Academic Hospital of the Univ. of Amsterdam for a small preterm infant having intractable apneic attacks. Apneic attacks diminished due to improved breathing pattern whileon kc. **Descriptive, apnea, breathing patterns.**

de Leeuw R. 1989. The kangaroo method in the care of preterm infants. XI Congress of Perinatal Medicine, Rome 1988. Roma, CIC Edizioni Internazionale, 1989., pp. 279-281. Dr. de Leeuw presents the clinical outcomes of routine kangaroo care given to offer parents close bodily contact with infant and to improve well-being of preterm infants. Extensive use of KC promoted parent-infant bonding without doing any infant any harm. **Implementation report, attachment, some physiologic outcomes, Preterms**

de Leeuw, R., Collin, E.M., Dunnebier, E.A., & Mirmiran, M. (1991). Physiologic effects of kangaroo care in very small preterm infants. Biology of the Neonate, 59(3), 149-155. Clinical observation study using pretest-test-posttest (each period = 1 hour) design of 8 preterms (27-29wks GA, M=28 wks; bw 770-1465 M=1104g) given one hour of maternal or paternal KC when clinical condition allowed (after days of ventilation and o2 support by CPAP or hood for irregular breathing with apneic attacks. Infants wore hat and blanket, parents sat in upright chair. Some had CPAP or O2 by mask during KC. KMC done randomly in am or pm.. Mean entry age=18.1 dyas, HR, RR, TcpO2 (between scapula on back), Behavioral state by 2 observers (80% reliability) using Prechtl & Parmelee scoring. Min by min scoring of regular/irregular breathing, % of time of reg/irreg breathing, # of apnea >10 seconds and % total time of apnea >10 secs.,power spectrum of breathing, rectal temp (B4 & after KC), bradycardia (<100 bpm). No diff between periods in HR, # of brady increased slightly during KC but not significantly (two infants had increase from 0 to 13 or 8 during KC), RR (during KC some had increased RR, some had decreased RR), % time in reg vs irreg breathing, # of apnea and total apnea time, tcpO2 (but 8 of the data points infants were still on O2 suport), % time in state 1,2, and transitional state (crying was not seen at all in any period), and in rectal temp (rectal temp increased somewhat inall but 2 very small infants who had a decrease of 0.3C from 36.8 to 36.5 and other from 37.1 to36.2 (0.9C change). Need to prevent hypothermia in very LBW infants. Power spectrum of breathing showed 3 infants had clear increased regularity of respiration and others had no change in regularity of breathing). Parental questionnaires show KC increases parental-self confidence and confidence in the baby. Some infants improved, others had no change. No clinical deterioration during KC. KMC has no lasting effect on sleep in infants. **Quasi-Experiment: PreKC-KC-PostKC infants as own control, Sleep, Micropreemies who wereunstable and VLBW, Paternal KC, CPAP KC, State, Breathing pattern, rectal temp, apnea >10 sec # and % time, bradycardia, crying, parent confidence, TcpO2**

De Luca, T, Agostino R, Muggia A, Butturini F. 1995. Il metodo marsupio. Neonatologica 9(2), 121-125. **ITALIAN**

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Delval, A.C. (1998). The Kangaroo method: a bond in caring for prematures. Rev Infirm 1998 Feb;35:26-28. **.FRENCH**

Di Menna, L. (2006). Considerations for implementation of a neonatal kangaroo care protocol. Neonatal Network, 25(6), 405-412. This is an evidence-based protocol to assist with implementation of KC. There is a good chart in which the aspect of implementation is on the left (i.e. use of head cap, upright position) and rationale with citation is on the right and the citations have been evaluated using a proprietary evaluation system. **Review, implementation, evidence-based protocol, guidelines**.

Diaz-Rosello, J.L. (1996). Caring for the mother and preterm infant: Kangaroo care. Birth, 23(2): 108-111. This is a review article with 17 references.**LITERATURE REVIEW**

Diaz-Rosello, J.L., & Bellman, M. (1985). Report of Pan American Health Organization/World Health Organization: Early discharge/ambulatory care program for low birthweight infants (kangaroo method). Montevideo: Centrro Latinoamericano de Perinatologia (Internal document 2/85),1985. 899 subjects studied from 1979-1984 in Bogota, Colombia.

Diaz-Rosello, J.L., Lozano, P.M. & Tenzer, S.M. (1990). Impaired growth of low birthweight infants in an early discharge program. In UNICEF Oficina Regional para La America Latina y el Caribe (Ed.), Primer Encuentro Internacional Programma Madre Canguro. Bogota: UNICEF, 1990, pp. 283-306. 129 subjects studied. **BF** ,**Wgt. Infants discharged in KC and exclusive BF do not gain enough weight in first year. Later work showed that infant’s need fortification of the breastmilk.**

DiMenna, L. 2006. Considerations for implementation of a neonatal kangaroo care protocol. Neonatal Network, 25(6), 405-412. Many health professionals are not aware of KC, its benefits, or how to perform it. Article reviews the literature on KC and its benefits, and then develops a list of evidence-based KC guidelines for use with all infants and their parents. Increased knowledge of and education on KC for healthcare providers should lead to increased, routine use of KC. **Review, implementation, guidelines**.

Dittrich, E. & Bartuschka, R. (1994). Gentle care in intensive medicine. Kinderkrankenschwester,13(8): 264-266.**GERMAN**

Dodd, VL. (2005). Implications of kangaroo care for growth and development in preterm infants J Obstet Gynecol Neonat Nurs 34(2), 218-232. A review article. Temperature studies revealed for infants greater than 28 weeks that temperature is stable or increases (pg. 225); heart rate data was of concern in only one of 17 studies reviewed (and that was Bohnhorst, 2001 – she did not review Bohnhorst et al., 2004); respiratory rate is not negatively affected by KC except for some tachypnea in Bohnhorst 2001 study (pg. 225), oxygenation is stable or improved except for Bohnhorst 2001 study with 8 infants; nurturing and sensitivity to infant needs occurs in KC group and is not disputed by any study; and that KC contributes to increased weight gain. Concludes that KC has nurturing advantages to both infant and parent. **Review, PT, HR, RR, Wgt, maternal feelings, oxygenation.**

Dombrowski MAS, Anderson GC, Santori C, Roller CG, Pagliotti F, Dowling DA. (2000). Kangaroo (skin-to-skin) care for premature twins and their adolescent parents. MCN, The American J. of Maternal/Child Nursing, 25(2): 92-94. 32 wk twins Kced by teen parents and showed attachment behaviors and self-confidence when interacting with infants. Ample milk supply, no engorgement. Normal development at 18 months.**Teen KC, BF, Development, FATHER.**

Dombrowski MAS, Anderson GC, Santori C, Burkhammer (2001). A case study of KC (Skin-to-skin) care with a depressed woman. MCN, American. Journal of Maternal Child Nurs, 26 (4), 214-216. KC started at 2 hrs postbirth, Mom was crying and expressing sad thoughts at that time – depressive symptoms disappeared within hours. During 1st 3 hrs of KC mom slept almost continuously. Continued KC every other day x 3 mos. and there after when she was stressed. **Early KC, Depressed KC, Stress-relieving KC.**

Doyle, L.W. (1997). Kangaroo mother care. The Lancet. Vol 350. December 13, 1997,p. 1721-1722. This is commentary on Charpak’s article. **Commentary**.

Drosten-Brooks, F. (1993). Kangaroo care: Skin-to-skin contact in the NICU. Maternal Child Nursing, 18(5), 250-253. Reports that one infant accidentally extubated during KC. Report of their use of KC in the NICU. **PROTOCOL, Vent KC, Clinical Report.**

Durand, R., Hodges, S., LaRock, S., Lund, L., Schmid, S., Swick, D., Yates, T., & Perez, A. (1997). The effect of skin-to-skin breastfeeding in the immediate recovery period on newborn thermoregulation and blood glucose values. Neonatal Intensive Care, March/April, 1997, p. 23-27. Infants started either KC or radiant warmer care 30minutes after birth and continued for 120 minutes. Temperature at 120 minutes postbirth was higher than swaddled and cot infant’s temperature. No differences in blood glucose levels was present. KC assists with manintenance of normal body temperature and reduces energy expenditure and concomitantly stimulated suckling and milk production. Maintenance of body temperature is needed to prevent lowered blood glucose levels. **Fullterm, BF, Temperature, Blood glucose, Birth KC/VEKC. Is this an RCT?**

Dzukou T, De La Pintiere A, Betremieux P, Vittu G, Roussey M, Tietche F. 2004. Kangaroo mother care: Bibliographical review on the current attitudes, their interests, and their limits. Archives of Pediatrics 11 (9), 1095-1100. In developing countries KMC regulates body temp and metabolic adaptation of the newborn. In developed countries, KMC contributes to decreased parental anxiety and improves relation with child. SAYS IT IS DIFFICULT TO RECOMMEND USE OF KMC in CURRENT PRACTICE (just like Conde-Agudelo et al, 2003 and repeated also in Venancio 200 article) Rigorous randomized controlled trials are needed to establish full safety and know kmc’s impact on neuropsychological development and the real somatic growth and economic cost. **Review, maternal attitude, maternal feelings, metabolic rate, temperature, growth, cost.** **Fullterm** **FRENCH**

Efe, E. & Ozer Z ( 2007). The use of breast-feeding for pain relief during neonatal immunization injections. *Applied Nursing Research 20*, 10-16. When infants were 2, 3 and4 months old they were given immunizations in 2 randomized groups: one that got BF in the KC position before, during and after injection (n = 33) vs. routine injection without holding and BF (n= 33). Crying time was shorter in KCBF group (35.85 +/- 40.11 sec vs. 76.24 +/- 49.61 sec, p = .001). HR and SaO2 were not different between groups. They conclude that BF, maternal holding, and KC significantly reduced crying in infants. **RCT, FT, Pain, Immunization, HR, SaO2,** crying NOT on Bibs yet.

Eichel P. 2001. Kangaroo Care: Expanding our practice to critically ill neonates. Newborn and Infant Nursing Reviews, 1(4): 224-228. Relates steps to starting KC, beginning with the 1st KC Conference in America. Did KC with vented babies,some stress with transfer but recovered quickly, then sound sleep with fewer episodes of A/B, desat. Some needed 10-15% more FiO2 during KC. Now they feed and suction in KC. **Clinical Report**.**<1000gm, Vent KC,sleep, apnea, bradycardia, desaturations feed/suction in KC, Implementation.**

Ellett, M.L., Bleah D.A., Parris S. (2004) Feasibility of using kangaroo (skin-to-skin) care with colicky infants. Gastroenterology Nursing, 27 (1), 9-15. 75 parents agreed to participate in an internet-based study of KC’s effects on colic, but only 5 actually did participate and only 2 completed data collection. Data based on 2 shows KC is promising intervention for colick and no other treatments are out there. She recommends a larger clinical trial. One infant spent 605 minutes crying and the other 1470 minutes. Difficult to do experimental study over the internet. **Fullterm,Case Study,Cry, Colic, Behav. states**

Elliott D. 2002. Kangaroo care. MCN Am J Matern Child Nurs, 27 (6), 357.

Engler,A.E. 2005. Maternal stress and the white coat syndrome: a case study. *Pediatric Nursing 31*(6), 470-473. One mother was doing KC when the infant’s surgeon approached her and the “white coat” syndrome caused her fingertip temperature to increase. GET THIS. **Case study, PT, maternal stress, fingertip temperature**.

Engler, A.E., Ludington-Hoe, S.M., Cusson, R.M, Adams, R., Bahnsen, M.A., Brumbaugh, E.J., Coates, P., Grieb, J.K., McHargue, L.K., Ryan, D., Settle,M., & Williams, D.M. (2002) Kangaroo care: National survey of practice, knowledge, barriers, and perceptions. MCN, Amer. J. Maternal Child Nursing 27(3): 146-153. 537 (59%) of all NICUS in America returned surveys. Over 82% report practicing KC, but mostly only upon request of mother. Nurses are knowledgeable. Barriers are infant safety concerns and reluctance by RN, NNP, MD and families. Units that practice KC have more positive perception than units that do not practice KC. >60% report that low GA or low weight are not contraindications.Lack of consistent KC guidelines in the NICU contributesw to most of the barriers to its use. **SURVEY. Barriers, practicek, knowledge, perceptions, implementation**

Engler, A.E. in press for 2006. Randomized trial of Kangaroo to reduce maternal stress. In press. RCT, pretest-test-posttest of 25 (13 KC,12 control) who gave 2 hours of KC or sat beside incubator for talk/touch but not holding for two hours on ONE Day only. Postnatal age was 17 days and GA was 32.8 wks. And mean BW of 1986 gms. Fingertip temp pretest KC 93.1, midway thru KC 92.13 , post was 91.07 & was sig higher in KC (higher fingertip temp = less stress) than controls at the mid point. PSS: NICU scales taken before and after the 2 hours.. Sights and sounds bothgroups went up, control grp had significant rise and Kcers did not; Appearance & behavior ofbaby” only sig decrease in controls eventho Kcers decreased too, Parental Role Alteration had no sign change in either group tho trend was for bothgroups to decrease stress intheir scale. MAACL was sig. lower in KC group after TX. No diff in skin conductance, galvanic skin response, salivary cortisol. **PT, Maternal Stres**s**, Fingertip temp, skin conductance, galvanic skin resistance, salivary cortisol, MAACL for dysphoria**

Ennen-Hansing-Eilers, M. (1997). Besonderheiten in der pflege schwerkranker fruhgeborener. KinderKrankenschwester, 16 (5): 175-179.

Ezinga, G., & Ezinga-Scotten, D.E. (1985). Onderzoek naar het eventueel ontstaan van hypothermi en hyppoglykemie bij thuisgeborenen na langdurig huidcontact postpartum. Ned Tijdschr Geneeskol, 129, 449-451. **FULLTERM**

Fairbank, L., O’Meara S, Renfrew M. et al. 2000. A systematic review to evaluate the effectiveness of interventions to promote initiation of breastfeeding. *Health Technology Assessment 4*??. Insufficient evidence on KC effects on BF initiation and duration. **Fullterm, BF**

Fardig, J.A. (1980). A comparison of skin-to-skin contact and radiant heaters in promoting neonatal thermoregulation. Journal of Nurse-Midwifery, 25(1 Feldman), 19-27. 17 Kcers got KC after initial nursing care under radiant warmer (Grp A), 17 got immediately KC (never under radiant warmer – Grp B) & 17 controls had no skin contact at all (Grp C). Skin temps taken every 3 minutes for 45 minutes; Rectal temps at 21 and 45 min postbirth. More controls had skin and rectal temps below NTZ at 21 and 45 min postbirth than either of KC grps. Kcers (Grp B) had temps that were same as those under radiant warmer (Grp A). **FULLTERM, skin temp, rectal temp, Birth KC/VEKC**

Feldman R, Eidelman A, Sirota L, Weller A. (2002). Comparison of skin-to-skin (Kangaroo) and traditional Care: Parenting Outcomes and Preterm Infant Development. Pediatrics, 110(1 Part 1), 16-26. 73 LBW infants who got KC in the NICU and 73 matched controls at other hospital. At 37 weeks GA, mother infant interaction, maternal depression, maternal perceptions measured. At 3 months infant temperament, mat-paternal sensitivity, etc.KCers had more positive interactions, and moms showed more positive affect, touch, adaptation to infant cues and infants were more alert, less gaze aversion. Kc moms had less depression. At 3 months, KC moms and pops were more sensitive and provided a better HOME environment. At 6 months, KCers had higher Bayley Mental (96.39 vs 91.81 for controls) and psychomotor (KC= 85.47; control 80.53). **Martched TX and Control, used TWO Hospitals, not RCT**,**Development, Bayley Mental/Motor, Temperament, Mat Behavior, alert, Mat. depression.** SLEEP??

Feldman R, Eidelman AI. (2003). Skin-to-skin contact accelerates autonomic and neurobehavioral maturation in preterm infants. Developmental Medicine and Child Neurology, 45 (4), 274-281. 70 infants got 24.31 days of KC for a total of 29.76 hours. 19males, 6 females I each group. GA was 30.28 wks, bw = 1229.95 gm and medical risk. KC is standard option in care, so no randomization of subjects, but they were matched. Vagal tone for 10 min B4 KC at 32 weeks and 10 min at 37 wks - Kcers had more rapid maturation of vagal tone. Behavioral state measured in 10 sec epochs x 4 hrs on 4 consecutive evenings at 32 (B4 KC) and same procedure at 37 wks using an unnamed 6 state scale – more rapid improvement in state organization (longer periods of quiet sleep, longer period of alert wakefulness and shorter periods of active sleep & better sleep cycling at 37 weeks than at 32 weeks in KC group and more mature state regulation at 37 weeks than controls. ) NBAS at 37 weeks showed more mature neurodevelopmental profile (especially habituation and orientation)in Kcers. State regularion is sign of maturation and is delayed in preterms. State scoring system was modeled after Brazelton and Holditch-Davis, a 6 state system without established psychometric properties. **Matched TX and Controls, but not RCT, Vagal tone, Quiet & Active sleep, Alert Inactivity, NBAS for development, Sleep Cycling**

Feldman R, Weller A, Leckman JF, Kuint J, Eidelman AI (1999), The nature of the mother’s tie to her infant: Maternal bonding under conditions of proximity, separation, and potential loss. J Child Psychiat 40 (6),929-939. Measured attachment in fullterm mothers, healthy preterm infant moms, and VLBW infant moms. Pg. 937 says “Intervention efforts that aim to enhance proximity and touch in VLBW infants, such as skin-to-skin contact (kangaroo care), may be crucial for these mothers in order to initiate the bonding process.” **FT, PT, maternal attachment, maternal depression**

Feldman R, Weller A, Sirota L, Eidelman AI. (2003). Testing a family intervention hypothesis: The contribution of mother-infant skin-to-skin contact (Kangaroo Care) to family interaction, proximity, and touch. J. Family Pscyhology 17(1), 94-107. 146 three-month old preterms were tested. 73 had received KC in the NICU. Micropatterns of proximity and touch were coded. Following KC, moms and dads were less intrusive, infants showed less negative affect, and family style was more cohesive. Maternal and paternal affectionate touch of infant and spouse was more frequent, spouses remained in closer proximity, and infant proximity position was conducive to mutual gaze and touch during triadic play in the KC group. KC is beneficial for development of family processes. **Not an RCT, interactions, development, proximity**

Feldman, R, Weller A, Sirota L, Eidelman A. (2002). Skin-to-skin contact (Kangaroo care) promotes self-regulation in premature infants: Sleep wake cyclicity, arousal modulation, and sustained exploration. Developmental Psych, 38(2), 194-205. 73 preterms got KC, 73 controls. KCers got at least 1 hr of KC per day x 14 consecutive days in NICU (Mean 26.62 hrs of KC+ 12.14 hrs). Tested 1-2 days B4 KC at 32 weeks and at 37 weeks GA, and at 3 and 6 mos. Corrected age. Control gp tested at 32 weeks and all other times were same. State measured in 10 sec epochs over 4 hrs before KC and at 37 weeks. KC infants spent SIG more of the 4 hr time in QS and Alert Wakefulness and less time in Active Sleep than controls. @term, KC more had mature state distribution, more organized sleep-wake cyclicity (but not B4 KC at 32 weeks), @ 3mos KC had higher threshold to negative emotionality and more efficient arousal modulation with complex stimuli. At 6 mos KC infants had longer duration and shorter latencies to shared attention and sustained exploration in toy session.Behavioral state scoring system was modeled after Brazelton and Holditch-Davis but is not anestablished psychometric tool. **Not an** **RCT, State, Development, sleep cycles, Quiet Sleep, arousals, Infant emotion, .** Used same stats as Engler

Ferber S.G., Makhoul I.R. (2004). The effect of skin-to-skin contact (kangaroo care) shortly after birth on the neurobehavioral responses of the term newborn: a randomized, controlled trial. Pediatrics, 113 (4), 858-865. 47 healthy mom-infant dyads (22 KC) began KC 15-20 mins after delivery for 60 min, 25 controls got no KC, standard wrapped care after being taken out of delivery room to be weighed and dressed and then returned to mom (kc only, control group babies went to nursery for 2 hours). At 4 hours postbirth they observed infant for every two minutes over one hour. Kc group slept longer, were mostly in quiet sleep state, had less time in transitional , fussy, crying, and alert states (using 6 state Brazelton scoring), showed more flexor movements and postures, less extensor movements. KC influences state organization and motor system modulation shortly after delivery, this kind of care should be offered shortly after birth. KC reduces infant stress (pg. 861). **Fullterm, RCT, development, sleep, quiet sleep,crying, alert state, flexed posture and flexed movements, motor develop, stress.**

Field, T., Hernandez-Reif, M., Feijo, L., Freedman, J. 2006.Infant Behavior & Development, 29(1), 24-31. Prenatal, perinatal, and neonatal supplemental stimulation: A survey of neonatal nurseries. 82 US NICU neonatal staff members in 25 NICUs around the southern US states responded to questionnaire. 1)skin-to-skin following birth in the delivery room (83%), containment (swaddling and surrounded by blanket rolls occurred in 86% of NICUs), music is in 72% of NICUs, rocking in 85%, kc (98%), nonnutritive sucking during tubefeedings in 96% NICUs, and breastfeeding in 100% NICUs. Pregnancy massage (19%), labor massage (30%), Doula (30%), NICU waterbeds (23%), preterm infant massage (38%). These are physicians’ perceptions, not staff nursing and I, SML, think that they are inaccurate as 100% of NICU infants do not get breastfed!! **PT, FT, Survey, KC, BF, rocking, NNS, swaddling, massage, Birth KC**

Fischer, C.B., Sontheimer, D., Bauer, J., & Linderkamp, O. (1997). Die Kanguruhpflege Fruhgeborener. Stand der Forschung und Erfahrungen in Heidelberg. Padiatrische Praxis, 52(4), 609-619. (Kangaroo care of premature infants. Status of research and experience in Heidelberg. Has English abstract on page 617).

Fischer, C.B., Sontheimer, D., & Linderkamp, O. 1998. Cardiorespiratory stability of premature boys and girls during Kangaroo Care. Early Human Development 52(2), 145-153. Pretest(2 hrs)-KC (2 hrs with cap and covered across back with cotton blanket)-posttest (2 hrs) design in which stability of HR, RR, and SaO2 values was measured by a method developed by the team- amethod of counting the boxes on the graph paper of how high the values were. KC had no effect on any stability indicator; boys had significantly less stability in all three measures than girls. **PT, Quasi-exp, HR, RR, SaO2, KMC only, stability.**

Flament, P. (1994). Le Portage Kangourou. FINB-INFO, #6, December, 3-5.

Flament, P. (1994). Kangaroo care. FNIB Info #6,Dec. 1994,3-5. **Clinical review.**

Fohe K, Kropf, S, Avenarius S. 2000. Skin-to-skin contact improves gas exchange in premature infants. J. Perinatology, 5, 311-315. 53 preemies <1800gm pretest incubator(60 min)-test(KMC: 90 min)-posttest(60 min) acting as own controls. HR increased 5 bpm, RR decreased 5bpm, SaO2 increased by 0.4%, tcpO2 increased by 48 mmHg, RECTAL temp increased by 0.3°C during KMC. Smallest increase in HR and highest decrease in RR is <1000 gramers; SA02 and tcpo2 increases doubled **in <1000grm** compared to >1800 gms. Infants remain clinically stable and have more efficient gas exchange. No risk of hypothermia in <1000 gramers. **HR, RR, SaO2, rectal temp, FiO2, TcPO2,TcPCO2**.**Very low birthweight and some micropreemies, Quasi-exp., stability**

Franck LS, Bernal H, Gale G. 2002. Infant holding policies and practices in neonatal units. Neonatal Network, 21(2), 13-20. National survey of policy and practice of conventional and KC holding. 215/400 responses from Level 3 and Level 2 nurseries. 40% of units have policies for KC and only 26% have policy for conventional holding; 73% offer parents KC with extubated infants, 45% offer KC with intubated ones, paternal KC permitted in 68%, sibling KC in 2%, grandparent KC in 6% of units, Many units permit KC with ventilated, CPAP, artery caths, percutaneous venous caths, and chest tubes (p. 18). Benefits are enhanced attachment and closeness. Readiness for KC determined by SaO2, HR, & RR, not wgt, GA. 25-33% of respondents identified staff RN and MD has not supportive of KC. Barriers to KC are infant stress, privacy, timing of parental visit, and getting staff help.**Descriptive Survey.**

Fransson, A-L., Karlsson, H., & Nilsson,K. (2005). Temperature variation in newborn babies: importance of physical contact with the mother. *Archives of Diseases of Childhood Fetal Neonatal Edition, 90(6)*, F500-F504. Descriptive study of abdominal, foot, and rectal temperatures over the first two days of life in 27 healthy fullterm newborns when held in close contact with their mother (babies wore diaper, cotton vest and romper (pg.F500) and when in cot were covered by blanket) versus when in a cot beside the mother. 48 hours of recording beginning 4-8 hours post-birth, so this is Early KC. There is no mention of KC as a condition, but the conclusion says “During periods of skin to skin care, peripheral and abdominal skin temperature increased, indicating a heat gain”.(pg. F503) but the article does not describe any skin to skin period, and **since when is dressed in vest, diaper, and romper called skin to-skin care?**  Foot temps rose quickly, all temps were higher when baby was with mom than when in cot. In KC mean difference between rectal and abdominal temp was 0.2C vs 0. 7 in cot babies; difference between rectal and foot in KC was 1.5C vs. 7.5C in cot babies – temp difference between rectal and foot of 7-8 degrees C indicates a HEAT LOSS close to the maximum heat loss for which a neonate can compensate. Difference between rectal and foot temp in KC showed positive heat balance, no heat loss. Article emphasizes importance of close physical contact with mothers for temp regulation during the first few postnatal days **. Fullterm, descriptive, abdominal Temp, foot temp, rectal temp, swaddled KC?, Early KC**.

Furlan C.E., Scochi C.G., Futado, M.C. (2003). Perception of parents in experiencing the kangaroo mother method. Review Latin-American Enfermagen, 11 (4), 444-452. 10 parents completed interview within 60 days after preterm infant discharge from charity hospital inside Brazil. Four themes were : KC should be flexible, KC improves mother-child and family relationship, KC helps complete infant’s growth & development, and KC helps mother develop caregiving skills. **Preterm, descriptive study, Parental report of KC’s meaning to them, attachment, development, caregiving skills.**

Furman, L., Kennell J. (2000). Breastmilk and skin-to-skin Kangaroo care for premature infants. Avoiding bonding failure. Acta Paediatr 89(11), 1280-1283. Gavage feedings can be given while preterm is held in KC. **PT,** **Regression analysis**, **BF, bonding/attachment, gavage**

Furman, L., Minich N., Hack, M. (2002). Correlates of lactation in mothers of very low birth weight infants. Pediatrics, 109(4), 695-696. Significant correlates of lactation beyond 40 wks Conceptional age included beginning milk expression before 6 hs post-delivery, expressing milk >5 times per day, and Kangaroo Care. Increased maternal support specifically directed toward behavioral factors, including early and more frequent milk expression and kangaroo care, may improve the rates of successful lactation among mothers of VLBW infants who choose to breastfeed. **Regression analysis. BF**

Gale, G, Franck, L., & Lund, C. (1993). Skin-to-skin (kangaroo) holding of the intubated premature infant. Neonatal Network, 12(6), 49-57. 25 intubated (>10 breaths/min) infants ofany weight or gestation with axillary temp 36-372 given adlib KC. Axillary temp measured after 10 mins of KC Did standing transfer. Transfer was most stressful, No infant dropped temp and it more commonly rose and had to have hat removed. Infants <1.2 grams needed 15-20 of adaptation to get good SaO2s, some became wriggly, less comfortable,and desaturated after 20-30 minutes. Bigger infants tolerated KC better and >30 week PCA did better in KC than <30 weeks. Infants slept for 10-15 min and then aroused in response to parent voice. One accidental extubation. Parent statements reflected stronger identify and knowledge of infant, greater comfidence in infant need for them and ability to meet needs. Parent liked to watch infant’s SaO2 improve during KC. No neg reactions from parent. **PT, descriptive, VENT KC, SaO2, Sleep, transfer, axillary temp, parent staff responses**

Gale, G., & VandenBerg, K. (1998). Kangaroo Care (part of the Developmental Care column) Neonatal Network, 17(5): 69-71. **Review.?** Crying? Sleep?

Gallagher KJ. 2000. Continuous skin-to-skin contact in the NICU: Kangaroo or “Possum” care? J. Perinatology, 5, 318-319. Silly article saying it should be called possum care because KC did not originate in Australia. How to people get this stuff published? **Commentary**.

Galligan, M. 2006. Proposed guidelines for skin-to-skin treatment of neonatal hypothermia. MCN, American Journal of Maternal/Child Nursing. (sept/oct) 31(5), 298-306. Clinical review of existing to literature to document the evidence behind using KC to rewarm hypothermic fullterm newborns during first 3 days postpartum.. Hypothermia is defined as mild: 36.0-36.4; moderate as 32.0-35.9, severe as less than 32.0, normal rectal or axillary temp is between 36.5 and 37.5 according to WHO 1997; AAP and ACOG 1997. In first 20 hours of life 17% of all temps are in hypothermic range (Takayama et al., 2000); and 51.8% of 200 term infants studied over first 72 hours postbirth had one or more hypothermic episodes and episodes peaked between 15 hr and 2nd day of life postbirth (Li et al., 2004).Christensson et al., 1998, Fransson et al., 2005 and Karlsson 1996 are reviewed. The guidelines are: no symptoms of distress, normal HR and RR, and having mild hypothermia, have mom empty bladder and be willing, medicate mom for pain, room temp should be at least 25C, mom wears hospital gown, no bra, and sits at any angle at which shes comfortable, put hat on infant’s head, allow as much of infant skin as possible in contact, use receiving blanket in fourths, monitor infant temp with axillary probe 15 minutes after start of KC, if temp is same or improved, check at 30 mins and then 1 hour post KC beginning. If infant axillary temp at any time is 36. or less or if temp is dropping after 30 minutes of KC or rectal temp less than 30 or infant not normothermic after 1 hour of KC or infant has signs of distress, stop KC. Fathers are an acceptable alternative, and KC may be beneficial for adoptive parents. She has a evidence-based scoring system that

Is unusual: A1=at least one randomized controlled trial involving this population; A2 = at least one RCT involving related populations, B = well designed RCT, or empirical data from published research reports, or widely accepted scientific principles, C = official recommendations of established advisory panels, D = expert opinions or consensus among clinicians**. Guidelines, FT, hypothermia rewarming, evidence-based practice rating system., temp**.

Gardner MR & Deatick JA. 2006. Understanding interventions and outcomes in mothers of infants. Issues in Comprehensive Pediatric Nursing 29 (1): 25-44. Review of literature of interventions designed to improve mothering outcomes. The manuscript relates that home visiting, KC, education, counseling, and group intervention all promote effective mothering during the first years of an infant’s life. Nurses should use these interventions to promote effective mothering during the first year of life. **Review, maternal behaviors.**

Gardner, S. 1979. The mother as incubator – After delivery. Journal Obstetric, Gynecologic and Neonatal Nursing, May/June 1979, 174-176. Infants delivered and dried, and given routine care, eye instillation, ID bands, and weighing and footprinting - then 10 given to mom for KC and covered with warm blanket. 9 were wrapped in one cotton and one plastic blanket, held briefly by parent and put under radiant warmer. Rectal temps taken 2 and 15 minutes after birth. KC infants had less drop in temp (1.1degree C) from 2-15 minutes than control (1.5 degrees C).**FULLTERM, Birth KC/VEKC, rectal temp, swaddled care**

Gartner LM, Morton J, Lawrence RA, Naylor AJ, O’Hare D, Schanler RJ, et al., 2005. Breastfeeding and the use of human milk. Pediatrics 115(2), 496-506. THIS IS THE SAME AS AAP above, and I am not sure which is the correct citation as I have seen the same manuscript reported both ways. So look at AAP 2005 for the annotation. Guideline, policy, fullterm, preterm, breastfeeding.

Gazzolo D, Masetti P, Meli M. 2000. Kangaroo care improves post-extubation cardiorespiratory parameters in infants after open heart surgery. Acta Paediatr, 89(6), 728-729. 5 male infants (X age=5 months) who had repeatedly failed extubation attempts earlier after cardiac surgery were observed every two minutes thruout three two-hour KC periods (each with a preKC measurement 2 hrs before KC). All 3 KC sessions occurred within first 12 hours of extubation (KMC was diaper only, covered with blanket)in Modena, Italy.SaO2 and tcpO2 sig. increased and TcpCO2, HR, and CVP sig. decreased during the 3 different KC periods. “Despite restricted study pop, findings suggest prolonged periods of KC during postop care might have impact on quality, therapy, and length of stay of postop pedi pts, with possible influences on management and costs”p. 729.**Descriptive.** **HR, RR, SaO2, TcPO2, TcPCO2, CVP, pH, Na, Ca, K, BP, Fullterm**

Gharavi B, Schott C, Linderkamp O. 2004. Value of kangaroo care, basalstimulation, kinesthesis awareness and baby massage in development promoting nursing of preature infants. Kinderkrankenschwester, 2 (9), 368-372. **Article in German, unavailable.**

Gitau R, Modi N, Gianakoulopoulos X, Bond C,Glover V, Stevenson J. 2002. Acute effects of maternal skin-to-skin contact and massage on saliva cortisol in preterm babies. J Reprod Infant Psychol 20(2), 83-88. **PT. Salivary cortisol GET THIS ASAP**

Gloppestad, K. 1988. Foreldrereaksjoner eter premature fodsel. Tidsskrift for jordmodre, 109-14.PT

Gloppestad, K. 1994. Initial separation time between mothers and their premature infants. A comparison between two periods of time. Vard I Norden 2-3, vol 14(2-3), 17-23. KC parents get to their infants in the NICU faster than those not planning to do KC. **Comparative survey. Visiting times.**

Gloppestad, K. 1995. Initial separation time between fathers and their premature infants: A comparison between two periods of time. Vard I Norden, 15(2): 10-17. When KC was introduced, waiting time was significantly reduced by 66.8%.**FATHERS, visiting times**

Gloppestad, K., 1996. Parents’ Skin to Skin Holding of Small premature infants: Differences between fathers and mothers. Vard Nord Utveckl Forsk, 16(1): 22-27. The time from birth til fathers held their preemie in KC was significantly later compared to mothers- about 120% difference of the median in time.**FATHERS**

Gloppestad, K. 1998. Experiences of maternal love and paternal love when preterm infants were held skin-to-skin and wrapped in blankets: Differences between the two types of holding. Vard I Norden, 18(1): 23-30. 103 mothers and 82 fathers held infants in both KC and swaddled and rated their love significantly higher when holding KC than when holding wrapped infants. No differences between fathers and mothers love ratings during KC.**KMC and FATHERS**

Gloppestad, K. (1998). Laktasjon hos modre til premature born: Forekomst ved forskjullige tidspunkter (Lactation in mothers of preterm infant: Prevalence at different point of times). Vard 1 Norden, 18(4), 27-35. OR

Gloppestad, K. 1998. Lactation in mothers of preterm infants: Prevalence at different points of time. Vard I Norden 4, vol. 18(4), 27-35. Mothers gave KC to preterm infants and answered open-ended questions about amount of breastmilk and BF practices at 1,3,6,8,12 months postbirth. **Preterm BF. Engl abstract only**

Gloppestad, K. (2000). Total lactation times for mothers of premature infants. Vard I Norden 1, Publ. No 55, Vol. 20(1): 15-21. 108 mothers of prematures were questioned about amt and duration of BF. Early KC was associated with longer lactation period. Abstract in English, rest is in Swedish.

Gomez Papi, A., Baiges Nogues, M.T., Batiste Fernadez, M.T., Marca Gutierrex, M.M., Nieto Jurado, A., Closa Monasterolo, R. (1998). Metodo canguro en sala de partos en recien nacidos a termino **(Spanish).** An Esp Pediatr 1998 Jun;48(6):631-633. English is: Kangaroo method in delivery room for fullterm babies.**.** 533 normal fullterms were given KC as soon as dried and for next two hours. Temperature of infant was related to duration of KC and 96% had axillary temp >36, 98.5% of infants stayed awake with KC, and KC infants who breastfed during KC stayed longer in KC. If infant had more than 50 min. of KC he had 8 times more probability of breastfeeding spontaneously. Moms tolerated it well though they were tired. **FULLTERM, DELIVERY ROOM, Birth KC. Descriptive study, Axillary temp, Awake state, BF, Mother’s toleration of KC.**

Gray L, Watt L, Blass E. 2000. Skin-to-skin contact is analgesic in healthy newborns. Pediatrics, 105(1):e14-e24. 30 newborns held in KC or left in crib for heel stick. Crying and grimace reduced by 82% & 65% from control levels. HR also reduced. Moms given 15 minutes to relax and were then tested. Says effect of KC is not opiod mediated but instead, in combination with taste and suckle of BF appears to form a pain blockade. KC meets the American Academy of Pediatric’s recommendation to use nonpharmacologic and environmental interventions to reduce or eliminate newborn stress or pain during circumcision (AAP, Circumcision Policy Statement. (#RE9850), Elk Grove, Ill: AAP. **Fullterm, HR, pain, cry, grimace, maternal relaxation.**

Gray L , Miller LW, Philipp BL, Blass EM. 2002. Breastfeeding is analgesic in healthy newborns. Pediatr 109 (4), 590-593. RCT of 15 infants who were breastfeeding in KC position during heelstick, 15 swaddled in bassinet during heel stick, 198 minutes after previous feed. Taste, suckling and KC were the elements that reduced crying by 91% and grimacing by 84% from control infant levels and HR was substantially reduced. In KC, infants cried 4% or 8.77 seconds and grimaced for 8%, 17.25 seconds during lance compared with 43% (72.07 seconds) crying and 50% (80.31 seconds)grimacing in controls. 11/15 Kcers did not cry or grimace at all during heel lance, and these effects extended well in recovery phase (1/15 Kcers cried during recovery, for a total of 10 seconds and controls cried for 28 seconds). Kc HR rose 6 pbm and control HR rose 29 bpm.  **Breastfeeding in the KC position.CRYING, HR, Grimacing, RESIDUAL EFFECTS, RCT.**

Grazel R, Hawn E. (2001). Parental stress during Kangaroo Care. Central Lines, 16(3), 6. Quasi-experimental, repeated measures, crossover design with moms as own controls. MG30.4 wks, MBW 141 grm, MmatAge-25 yrs. Listenting to music by headphone during KC decreased mat. Stress, as did KC without headphones. Stress reduction was greater with headphones. Used PSS:NICU scale.

Gross-Loh C. 2006. Caring for your premature baby. Mothering March-April, 38-47. REED AND PUT ON ARTICLE.

Grossman K, Thane K, Grossman KE. 1981. Maternal tactual contact of the newborn after various postpartum conditions of mother-infant contact. Developmental Psychology, 17, 158-169. 54 mixed parity middle income West German infants. Grp 1: 12 controls – mom saw infant and may have touched briefly, then baby dressed and moved to mothers bedside in bassinet; saw infants 5 times each day for about 30 minutes at feeding times. Grp 2: early contact infants - may have received 30 min of KC in delivery room (nude infant placed in maternal arms on delivery bed with heater overhead; n = 12), then routine feeding every 4-5 hours same as control. Grp 3 (n=17) extended contract, had infants beside their beds for 4 hours in am and 1 hour in pm and could change their diapers. Grp 4 (n=13)- possible KC same as group 2 and rooming-in same as grp 3. AT 2,5,8 days: Summed score for tender touches, duration and frequency increased for extra contact group. **Fullterm, Quasi exp as assigned sequentially (successively) in grp 1 then grp 2 etc. maternal behavior May not be KC –does not specify if mom wore gown. Check with Gene if this is KC or not – did she clarify for the Cochrane?**

Hake-Brooks, S.J., & Anderson, G.C. (in press). Randomized controlled trial: Kangaroo care and breastfeeding in mother-preterm infant dyads 0-18 months. Neonatal Network, 66 moms and preterms 32-36 wks GA, 1300-300 gm BW, 5 minute APGAR > 6 were randomized into KC (n=36) and controls (n=30) with data collected at Rainbow Babies and Children’s Hospital (3rd level, University hospital in Cleveland) and in Kadlec Med Ctr (2nd level, community based hospital in Richland, WA). KC dyads (n= 36; mean KC = 4.47 hrs/day) BF longer (5.08 months vs. 2.05 months, and more exclusively (100% breastmilk, IBS level 1& 2) at discharge & 6 months postdischarge than controls(n= 30, defined as wrapped in blankets whenever they were held). Clinically significance differences (but not statistically significant differences) occurred in exclusive BF at each measurement. Follow up was by phone at 6 wks & 3 months and in clinic at 6,12, 18 months . IBS = Index of Breastfeeding Status by Labbok & Krasovec, 1990). **RCT, PT, BF, BF exclusivity**

Hales D, Kennell J, Klaus M, Mata L, Sosa R. Urrutia J. (1975), The effect of early skin-to-skin contact on maternal behavior at twelve hours. Ped Res, 9 (4), p. 259.9 primip moms given infant for 45 min of KC after leaving delivery room and then to nursery til 12 hrs old vs 10 primip moms who were separated from babies after delivery for first 12 hrs. AT 12 hrs, babies brought to moms and observed for behaviors for 15 second every minute x 15 mins.KC moms had sig increased attachment behaviors(fondling, kissing, en facing, gazing at, holding baby close) but no caretaking differences.  **FT. Does not specify randomization.Quasi-Experiment. Maternal attachment behaviors.**

Hales D, Kennell J, Sosa R. (1976). How early is early contact? Defining the limits of the maternal sensitive period. Pediatric Res, 10, 259. Randomized study of 3 grps in Guatemala. Grp 1 (n=20) got 45 min of KC in recovery room under heat lamp and then to nursery until 12 hours old– called early contact group; grp 2 (n-= 20) got 45 min of KC starting at 12 hours postbirth(called delayed contact), grp 3 (n =20) first saw swaddled baby at 12 hrs postbirth. At 36 hours: Sig. More affectionate behaviors (en face, looking at baby, talking, fondling,kissing, smiling) than delayed or control moms. No difference between groups in proximity maintaining behavior(keeping baby in bed, holding it close) or in care taking (wiping mouth, burping) of infant. **RCT, Fullterm. Maternal behaviors. (Same as 3rd study reported by Sosa et al., 1976).**

Hales D, Lozoff B, Sosa R, Kennel JH. 1977. Defining of the maternal sensitive period. Dev Med Child Neurol 19 (4), 454-461. Randomized study of 3 grps in Guatemala. Grp 1 (n=20) got 45 min of KC in recovery room under heat lamp and then to nursery until 12 hours old– called early contact group; grp 2 (n-= 20) got 45 min of KC starting at 12 hours postbirth(called delayed contact), grp 3 (n =20) first saw swaddled baby at 12 hrs postbirth. At 36 hours: Sig. More affectionate behaviors (en face, looking at baby, talking, fondling,kissing, smiling) than delayed or control moms. No difference between groups in proximity maintaining behavior(keeping baby in bed, holding it close) or in care taking (wiping mouth, burping) of infant. **RCT, Fullterm. Maternal behaviors. (Same as 3rd study reported by Sosa et al., 1976).**

**`**Hall WA, Clauson M, Carty EM, Janssen PA, Saunders RA. 2006. Effects on parents of an intervention to resolve infant behavioral sleep problems. Pediatr Nurs, 32 (3), 243-250. REED AND PUT ON Article.

Hamelin, K., & Ramachandran, C. (1993). Kangaroo care. Canadian Nurse 89(6), June 1993, 15-17.**VENT KC**

Hamm, S., Stoffel, L., Strebel, E., & Wyss, E. (1993). Method for strengthening the mother-child relationship. As warm as in the kangaroo pouch. Krankenpflege-Soins Infirmiers, 86(8), 9-11.

Hann M., Malan A, Kronson M, Bergman N, Huskisson J. 1999. Kangaroo Mother Care.South African Medical J, 89(1): 37-39 and page 3 and page 241 for comments. Reports on use of KC at Groote Schuur Hospital and reports of three studies. **PT,** **24 HR KC, IMPLEMENTATION, Between Breast KC, allowed to BF in KC**

Hanson et al., 2005. Kangaroo Care for Ventilated Infants. Presentation at the 18th Annual Physical and Developmental Environment of the HighRisk Newborn conference, Sand Key, Florida. Randomized controlled trial of ventilated KC conducted at Sarasota Memorial Hospital. Contact Cindy Martin. **Preterm, RCT, Ventilated KC**

Harris H. 1994. Remedial co-bathing for breastfeeding difficulties. Breastfeeding Review 2(10), 465-467. This is a remarkable picture story of doing KC in a warm bath in the immediate postpartum period (within one hour of birth) to get infant to crawl spontaneously to the breast. Author states that infant needs UNINTERRUPTED time to do this and will go to breast if given time. She says pouring water over infant will keep him warm, crying stops, infants occasionally go to sleep, so stroke him down his back and his journey to the breast conintues. **Descriptive, crying, temperature, BF, sleep**

Harrison, LL (2001). The use of comforting touch and massage to reduce stress for preterm infants in the neonatal intensive care unit. Newborn and Infant Nursing Reviews. 1(4),235-241.**REVIEW of STILL TOUCH, STROKING, MASSAGE, and KANGAROO CARE TOUCH.**

Hendricks Harrison LL & Klaus M. (1994). Commentary: A lesson from Eastern Europe. Birth, 21(1): 45-46. Commentary on Levin’s article in same journal.

Hendricks-Munoz, K. (2002). Karen Hendricks-Munoz, MD, discusses Kangaroo Care at NYU Medical Center. Msnyuhealth.org. Posted July 16, 2002. available at [www.msnyuhealth.org/articles/kangaroo\_care.html](http://www.msnyuhealth.org/articles/kangaroo_care.html). Describes KC, theypermit it as long as mom likes, says moms breast warms up and cools down with infant Cites HR, RR from other studies and states “We arecontinuing to find that KC helps babies grow stronger and leave hospital sooner –upto 20 days sooner- with no evidence of increased infection. Also quotes a study of less maternal depression. **PT, clinical report, infection, growth, LOS, Mat depression,Mat-Neonatal Thermal Synchrony.**

Heyns L, Gie RP, Goussard P, Beyers N, Warren RM, Marais BJ. 2006. Nosocomial transmission of Mycobacterium tuberculosis in kangaroo mother care units: a risk in tuberculosis-endemic areas. Acta Paediatr, 95(5), 535-539. REaD AND PUT ON ARTICLE.

Hill, P.D., Aldag, J.C. 2005. Milk volume on day 4 and income predictive of lactation adequacy at 6 weeks of mothers of nonnursing preterm infants. Journal of Perinatal and Neonatal Nursing, 19(3), 273-282. **PT, BF**

Hill PD, Aldag JC, Chatterton RT. (1999a). Breastfeeding experience and milk weight in lactating mothers pumping for preterm infants. Birth, 26(4), 233-238. Average frequency of KC/wk was used as covariant in comparison of single vs double pumping on milk yield from2-5 weeks PP. No infants were breastfed during wks 2-5 PP.. KC was significantly related to 2=5 wk PP milk yield (p=.017). **PT, BF**

Hill PD, Aldag JC, Chatterton RT. (1999b). Effects of pumping style on milk production in mothers of non-nursing preterm infants. J.Human Lactation, 15(3), 209-216. **PT, BF**

Hosseini, R., Hashemi, M., & Ludington-Hoe, S.M. (1992). Preterm infants and fathers: Physiologic and behavioral effects of skin-to-skin contact. Ursus Medicus, 2, 47-55.**FATHERS**

Huang, Y.Y., Huang, C.Y., Lin, S.M., & Wu, S.C. 2006. Effect of very early Kangaroo Care on extrauterine temperature adaptation in newborn infants with hypothermia problems. Hu Li Za Zhi, 53(4), 41-48. Randomized controlled trial of early KC vs. radiant warmer. 78 consecutive cesarean newborn infants with hypothermia were randomized. KC group got KC with their moms in the post-op rrom, controls got routine care under radiant warmers. Mean temp of Kcers was higher (36.29 vs. 36.22, p=.04) than those under radiant warmers. After 4 hours, 97.43% of KC group infants had reached normal body temp vs.82.05% of controls. KC should be incorporated into standard care to improve hypothermia care. **FT, RCT, very early KC, cesarean section, warming, hypothermia.**

Hurst NM, Meier P. 2001. Managing breastfeeding for preterm infants and their mothers. Central Lines, 17(4), 1, 3-7. Refers to use of KC on pg 3 with pictures and how helpful it is to promote breastfeeding.Differentiates starting with KC and progressing to KC + nonnutritive sucking to BF. **BF**

Huang YY, Huang CY, Lin SM, Wu SC. 2006. Effect of early kangaroo care on extrauterine temperature adaptation in newborn infants with hypothermia proplems. Hu Li Za Zhi, 53 (4), 41-48. Article in Chinese.

Hurst, N.M., Valentine, C.J., Renfro, L., Burns, P. & Ferlic, L. (1997). Skin-to-skin holding in the neonatal intensive care unit influences maternal milk volume. J. Perinatology, 17(3): 213-217. 8 mothers started KMC during the first 4 weeks postdelivery and 8 others in the following 4 weeks. All babies had been ventilated. Mean 24-hour milk volumes at 2,3,4 weeks after delivery showed strong linear increase in KMC infants, and no change in control infants’ mothers’ milk volumes.**FULL-TERM?? Or PRETerM??, milk volume, BF**

Hsieh Y, Huang M. 2000. Preliminary study of kangaroo care for preterm infants. Effect on parent-infant relationship. J Nursing (China), 47(3), 33-40. Qualitative study of 16 parents who gave KC who answered 8 open-ended questions about KC’s meaning to them. KC decreases parental anxiety, increases self-confidence and promotes positive relationship between parent and baby.**ENGL Abstr.PT, qualitative study, Maternal anxiety, maternal self-confidence, + relationship between mother and infant.**

Ibe OE, Austin T, Sullivan K, Fabanwo O, Disu E, Costello AM. 2004. A comparison of kangaroo mother care and conventional incubator care for thermal regulation of infants <2000 g in Nigeria using continuing ambulatory temperature monitoring. *Ann Trop Paediatri 24* (3), 245-251. Cross-over quasi- experimental study of ambulatory KMC alternating with incubator care in Lagor,Nigeria.Each KMC/incubator session was 4 hours, 38 KMC sessions compared to 38 incubator sessions in 13 stable 1200-1999g infants who were 24 hrs-30 days old who wore cotton vests and caps (pg. 246) during KMC (**IS this REALLY KMC?)** and only diaper in incubator. KMC done by mother or by surrogate female. Infant forehead and axillary temp and maternal chest temp every 5 min x 4 hrs for eachs ession. Each day had 3 KMC and 3 incubator periods. Mean axillary temp in KMC = 37.6 (o.5), incubator = 37.1 (0.8); mean microambient temp in KMC = 34.3(01.2) and incubator = 33.6 (3.5). Core (axilla)-periphery (forehead skin) diff in KMC = 1.5 (0.6) and in incubator – 1.0 (0.7). Risk of hypothermia reduced by >90% in KMC vs. incubator, and more cases of hyperthermia (>37.5) in KMC, core-periphery temp differences widen but risk of hyperthermia >37.9 was not significant. Microambient temp (next to infant, under bra top of mom) higher in KMC than incubator (tho room temp was same). 88% of Moms thought KMC safe, 100% preferred KMC to incubator because no separation, 63% had probs adjusting to KMC, 53% thot KMC was convenient for mom, 75% thought KMC was comfortable for mom, 100% thoughtt KMC comfortable for baby. KMC is preferred method for managing stable LBW infants. **Quasi-Exp, 3rd world, Axillary temp, forehead temp, core-periphery gradient, Micro-ambient temp(breast temp) Maternal feelings, surrogate KC. Swaddled KC (dressed).**

Isaacson LJ. 2006. Steps to successfully breastfeed the premature infant. Neonatal Network, 25(2), 77-86. On page 81 begin two sections entitled Kangaroo Care and then Kangaroo Care Plus Gavage Feeding. It generally recommends KC because KC familiarizes the infant with mother’s scent and feel of breast, moms experience let down during KC, and report largest let down when holding in KC (Meier et al., 1998). Under gavage feedings it says gavage feedings can be given during KC and allows infant to associate full stomach feelings with being at breast. At 30 wks pma infants want to suck and can go to breast in KC and”for the most part, infants on CPAP, nasal cannula, or, of course, room air, are stable enough to participate in this (suckling at breast and gavage feeds in KC) step.” (pg. 82). Clinical **Review, PT, BF, CPAP, Cannula, gavage feed, let down. Not on Charts yet**.

Javorski M, Caetano LC, Vasconcelos MG, Leite AM, Scochi CG. 2004. Social representations on breastfeeding according to preterm infants’ mothers in Kangaroo Care. Rev Lat Am Enfermagem 12(6), 890-898.

A qualitative study of meanings assigned to breastfeeding in KC mothers. Mothers identified the following meanings: healthy babies are breastfed, mother’s milk provides protection and preserves premature’s life, BF is the complement of motherhood, BF a premature infant is hard and exhausting. Babies have problem of late sucking. **3rd world, BF.**

Johanson, R.B., Spencer, S.A., Rolfe, P., Jones, P., & Malla, D.S. (1992). Effect of post-delivery care on neonatal body temperature. Acta Paediatrica, 81(11), 859-863. 300 infants (KC beginning immediately after birth when infant put to breast under mom’s clothing or possibly under swaddling and kept against mother’s breast) was as effective as oil massage or plastic swaddling in keeping babies warm. Fullterm and Preemies were analyzed as one group, and there are many methodological omissions in the report. Kangaroo Care may or may not have been given. **RCT, Birth KC/VEKC, swaddling, temperature, Preterm and fullterm**

Johnson, AN 2007. Factors influencing implementation of kangaroo holding in a special care nursery. MCN: The American J of Maternal Child Nursing, 32(71), 25-29. Descriptive study of 67 RNs who completed a survey to identify factors that supported implementation of KC in level III nursery. Primary factor for implementing was the assessment of infant physiologic stability, then adequate nursing staff patterns, maternal readiness, encouragement from management. Nurses with 5 or more years of practice were more likely to implement KC than less experienced nurses. Support included educational programs, adequate staffing, and encouragement. **Descriptive,** **Implementation, barriers to practice.**

Johnson, AN. 2005. Kangaroo holding beyond the NICU. Pediatric Nursing 31 (1), 53-56. A review article that cites many studies as well as International Network for Kangaroo Mother Care. Article relates origins of KC, the effects of KC on infant physiology, maternal feelings, pain outcomes, maternal attachment (and quotes general adult attachment literature in relation to touch effects), infant development (called long-term study of community KC),and has a simple and useful table of effects on page 54 and she outlines the role of all nurses in KC on page 55.. Implications for nursing are that KC should be expanded to the pediatric units (because “no studies in Pediatric Intensive Care unit” pg. 55), prenatal classes to parents and into the community. Visual aids and reading materials are important tools,(pg. 55). And “the use of IVs and oxygen does not preclude the practice of kangaroo holding” (pg. 55). “Advance practice nurse need to be included in the plan for KC” (55) Also effects on maternal pain should be considered  **Review, Community KC, Maternal Pain, Maternal Stress, Pediatric KC, INK,**

Johnson & Johnson Pediatric Institute. (2001). Skin-to-skin: The Mother/Baby Package. A Reference Guide for the Health Care Professional. Skillman, N.J. Available from J& J 1-877-565-5465. Contains articles by Zupan, Christensson, and Ludington-Hoe. **Clinical Review for practitioners**

Johnston, C.C., Stevens, B., Pinelli, J., Gibbins, S., Filion, F., Jack, A., Steele, S., Boyer, K., & Veilleux, A. (2003). Kangaroo Care is effective in diminishing pain response in preterm neonates. 2003 Arch Pediatric and Adolescent Medicine 157 (11), 1084-1988. 74 preterms 32-36 wks postconceptual age and within 10 days of birth were in cross-over (served as own controls) study of 30 minutes of KC and then heelstick in KC versus being prone in incubator and getting heelstick in incubator. Premature Infant Pain Profile scores over first 90 seconds of heel lance procedure were significantly lower by 2 points in KC. KC effectively decreases pain of heelstick. **PT, Quasi-Experimental, Pain**

Jonas W., Wiklund I, Nissen E, Ransjo-Arviddson A-B, Uvnas-Moberg K. 2007. Newborn skin temperature two dyas postpartum during breastfeeding related to different labour ward practices. Early Human Development 83, 55-62. 27 mother infant fullterm pairs who were all lying dressed on mom’s bed , awake, hungry, calm, and no crying on Day 2 of life. All were undressed and weighed with diaper. Then immediately place in KMC and covered with light blanket. This is standard practice and all moms continued KMC for at least 30 minutes and all moms were BF.. Measurements taken on morning of Day 2 of life. Treatment groups were based on oxytocin and epidural: 9 moms had received oyxtocin during labor, 20 moms had epidural + oxytocin, 18 moms had neither oxytocin nor epidural and served as control. Skin temp on back (between shoulder blades, put in KMC and covered with blanket, Skin temp immediately after placement on moms and 5, 10, 20, and 30 minutes after placement First skin temp higher in epidural than controls, skin temp increased sig during the experimental period in the control infants, same response in moms who got oxytocin (p=.008),no such rise in infants whose mom’s had epidural during labor. In summary, novel finding of rise in newborn skin temperature during breast feeding and KMC two days postbirth is similar to findings immediately after birth. But if mom got oxytocin or epidural in labor, her babies skin temp did not rise during KC as well as moms who did not have oxytocin or epidural.. **Quasi experimental, Fullterm, temp, epidural related temp, analgesia KMC = normal behavior, oxytocin. ( See also Bystrova 2007 in which KMC was considered normal and other treatments were evaluated for their effect**).

Jones, J, Kassity N, Duncan K. 2001. Complementary Care: Alternatives for the Neonatal Intensive Care Unit. Newborn & Infant Nursing Reviews. 1(4): 207-210. A simple review of common KC outcomes and suggests that KC may lead to accelerated recovery and healthier outcomes due to its promotion of attachment bonds. KC when used with milk fortifiers may improve weight gain and better health.**Review BF, weight**

Jorgensen, K.M. (1999). Kangaroo Care: Not a useless therapy. Central Lines (J. of NANN), 15(3), p. 22.

Kadam S, Binoy S, Kanbur W, Mondkar JA, Fernandez A. 2005. Feasibility of Kangaroo mother care in Mumbai. Indian J Pediatrics 72(1), 35-38. 89 low birth weight infants (<1800 grm, stable cardiopulmonary in air, APGAR of 7 at 5 mins and on feeds (breast or breastmilk feeds by spoon), Mean age = 3.2 days (1-8 days range) randomized (44 KC, 45 conventional care [CMC]) in tertiary care unit. Moms sat semi reclined holding upright baby beneath cloth dupatta for at least one hour each session and continuing for as long as comfortable (Mean =9.8 hrs/day SD =3.7 hrs)and until discharge (wgt gain for 3 days, maintaining temp, feeding well, and mom confident of caring for baby at home). CMC under radiant warmer until disch. HR and SaO2 continuous, RR each hour when in quiet state, Axillary temp for 3 minutes each hour and when hypothermic (<36C) & hyperthermic (>38C). KMC group had significantly: less hypothermia (10/44 vs. 21/45), higher SaO2 (95.7 vs. 94.8%), and decreased respiratory rate (36.2 vs 40.7). No differences in # of hyperthermia episodes, sepsis (KMC=6; CMC=8), apnea (KMC=6, CMC =8), BF onset (KMC 4.7 days(+3.3); CMC5.6 days(+3.9), hospital stay (KMC=8.5 +.4.4; CMC=9.3 + 4.5 days), weight gain (KMC = 1494+211g: CMC = 1462+205g). 15 KMC babies transferred back to conventional care (for sepsis = 6; for apnea = 6, for jaundice = 7 – which equals transfer back to CMC rate of 34.1%). Klebsiella pneumoniae was predominant organism. One baby died in each group (due to sepsis for KMC and NEC for CMC). Moms asked 3 questions: Do you feel comfortable when giving KMC? Will you continue giving KC at home? Does your husband agree with this care? 86% moms happy with KMC, 14% felt CMC was better; 79% of moms felt comfortable during KMC and 73% felt they would be able to give KMC at home; 64% fathers agreed with KMC **PT, RCT, temp., SaO2, HR, RR, apnea, sepsis/infection, hospital stay, maternal feelings, community KC, BF, weight gain, transfer back rate, 3rd world**

Kambarami, R. (2002). Kangaroo care and multiple births. Annals of Tropical Paediatrics,22(1), 107-108. States there is a global paucity of data on use of KC in twins or triplets (107). Did retrospective chart review cross sectional (twins & triplets) survey of 68 twins & 4 triplet mothers, but 26 twin and 2 triplet mothers had only one surviving infant for the study. Infants had been admitted to the KC unit (24/7 KC unit) on day 4 of life and stayed a median of 3 days. 6 were sent to nursery for sepsis, 2 for poor weight gain, one for pallor. All were discharged from KCU well and exclusively BF. Twins and triplets who received KC in first week of life tolerated it well, managed to BF well in a very short time and left the hospital early. They conclude that KC is feasible and safe for twins and triplets. **LETTER**. **PT, retrospective survey, Sepsis, BF, exclusively BF, LOS, Shared KC, some single KC**

Kambarami RA, Chidede O, & Kowo DT. (1998).Kangaroo care versus incubator care in the management of well preterm infants – a pilot study. Annals of Tropical Paediatrics, 18(2), 81-86. 37 KC group (KC 24/7) gained twice as much weight per day ( 20.8 vs. 10.2 g, p = .0001)as the 37 controls, had shorter hospital stay (16.6 vs. 20.7 days, p – 0.04), and better survival rate (0% vs. 9% deaths), and were ill less frequently but not significantly less when age and weight were adjusted for. “KC has major advantages over incubator care of preterm infants…”(p. 81). **RCT. Weight, LOS, survival, mortality, illness (sepsis? Or general morbidity).**

Kambarami RA, Chidede O & Kowo DT (1999). Kangaroo care for well low birth weight infants at Harare Central Hospital Maternity Unit—Zimbabwe. Central African J. of Medicine, 45(3), 56-59. 613 mother-infant pairs, got KC in tertiary level hospital when preterms were “well.” Median KCU admission age = 12 days; 72% discharged home from KCU and 28% referred to NICU. More likely to go back to NICU if male, BW <1500 gms, KCU admission wght <1500grms, and KCU admission age 14 days or more. 27% set to NICU for apnea, 27% for respiratory distress, 18% for aspiration pneumonia, 8% for jaudince, 7% for poor feeding, 5% maternal illness, 4% sepsis, 3% diarrhea. Birth weight was strongest predictor of being sent back to NICU. Establishment of KCU in tertiary hospital is feasible, KC for well preterms is suitable for most mothers and infants, and infants are most likely to go back to NICU if male, very low birth weight, and greater than two weeks old when admitted to KCU. **Implementation, Apnea, feeding, jaundice, sepsis, maternal illness. Guidelines for admission to KCU in tertiary hospital.**

Kambarami R, Chidede O, Pereira N. (2003). Long term outcome of preterm infants discharged home on kangaroo care in a developing country. Annals Trop Paediatri, 23 (1), 55-59. 297 preterm infants born at Harare,Zimbabwe were discharged home on KC. 26.6% died (median age=66 days), 47.5% survived, 25.9% lost. Hospital readmit rate = 22.9% with 8.8% mortality. Maternal mortality=4.7%,chronic infant morbidity was 7.4%. Infant mortality was related to young age of mom, Bw <1500, and maternal mortality, not to dischg wgt or BW. **Descriptive,Home follow-up, Morbidity,Mortality, hospital readmit rate.**

Kambarami R, Mutambirwa J, Maramba PP. 2002. Caregivers’ perceptions and experiences of ‘kangaroo care’ in a developing country. Trop Doct 32 (3), 131-133.Focus group showed that nurses preferred KC to conventional methods, but still it’s use is not widespread. Knowledge & awareness of method need tobe improved. **Qualitative, focus group, staff perception, implementation.**

Karlsson H. 1996. Skin to skin care: heat balance. Archives of Disease in Childhood 75: F130-F132. Nine healthy neonates, **FULLTERM,** were given 60 minutes of KC on Mom's chest and rectal temps increased by 0.7°C, going up to 37°C, during KC. Heat was gained from areas in contact with mother's skin; heat loss from un-protected heads was high, but dry heat loss during KC was similar to dry heat loss in an incubator. Overall, there was reduced heat loss in infants during KC, allowing heat to be conserved. Kcers attained and maintained rectal temps. **Fullterm, Rectal temp, descriptive, Temperature**

Kennedy N, Gondwe L, Morley DC. (2000). Temperature monitoring with ThermoSpots in Malawi. The Lancet, 355, 1364. Ten infants <2000g. had axillary and rectal temps measured 2x/day x 5 days. KC was done for hypothermia. KC was cost-free and effective method of rewarming. **Axillary temperature, Rectal temperature, Rewarming.**

Kennell, J.H. (2006). Randomized controlled trial of skin-to-skin contach from birth versus conventional incubator for physiological stabilization in 1200g to 2199 g newborns. *Acta Paediatrica 95*(1), 15-16. The is a commentary on Bergman’s RCT and he asks why Bergman would even think of trying this study and did not cite the previous studies done by Ludington-Hoe and another by Anderson et al and their published reports as reasons, but was glad that Bergman did this trial. He also makes laudatory comments about the breast biosynchrony study of Ludington-Hoe et al., that was published in Journal of Obstetric, Gynecologic, and Neonatal Nursing in 2006. **PT, Commentary, breast biosynchrony temps.**

Kirsten G.F., Bergman N.J., Hann F.M. (2001). Kangaroo mother care in the nursery. Pediatr Clinics North America, 48(2): 443-453. A general review of KMC and its safety and effects, including BF effects. An easy to follow article that relates implementation guidelines too.**Review**, **Breastfeeding, implementation, guidelines.**

Kirsten G, van Zyl J, Kirsten C, Thompsen E. 2004. Impact of unfortified human milk feeding on weight gain and mineral studies of very-low-birth-weight infants discharged from a Kangaroo Mother Care unit. Advances in Experimental Medical Biology 554, 379-381**. Micro-preemie, BF, weight, minerals.**

Klaus MH, Jerauld R, Fregers C,McAlpine W, Steffa M, Kennell JH. 1972. Maternal attachment: Importance of first postpartum days. New England J. Medicine, 28, 460-463. Mothers who had been allowed extended contact with their FT infants immediate after birth showed more affectionate behavior one month later than did mothers in a control group. **Full term, Maternal affectionate Behavior, RCT**

Kledzik, T. (2005). Holding the very low birth weight infant: Skin-to-skin techniques. Neonatal Network 24 (1 – Jan/Feb issue), p.???. This article offers practical solutions for common barriers to skin-to-skin holding. Has pictures of sitting and standing transfer techniques. **Clinical,** **Skills, implementation, Preterm.**

Kluthe C, Wauer RR, Rudiger M. 2004. Extrasystoles: Side effect of kangaroo care? Pediatr Critical Care Medicine 5 (5), 455-456. Case report of one preterm infant who exhibited cardiac arrhythmia on the ECG monitor during KC, leading to interruptionof KC. Arrhythmia disappeared after placing baby back in incubator. Most likely reasons for arrhythmia were not valid, and arrhythmia reappeared upon continuation of KC. ECG monitoring revealed the reason was monitoring error due to superimposed electrical activity from the parent. Oxygen saturation represent a more reliable method of monitoring during KC (N.B.: this is similar to the Sontheimer et al’s 1995 report entitled “Pitfalls in respiratory monitoring…” which says you pick up maternal breaths and pauses if leads are not placed under the infant’s axilla where the mother’s cardiac cycle is not picked up). **Case study, descriptive, HR, arrhythmia, oxygen saturation.**

Koepke, J.E., Bigelow A.E. (1997)**.** Observations of newborn sucking behavior. Infant Behavior and Development, 20, 93-98. 6 preterm and 6 fullterms. Infants put into KC for BF after a bath. Documented their search for nipple and spontaneous sucking behaviors. **Fullterm, Preterm, BF and KC/BF. Descriptive study of sucking and nippling behaviors.**

Komara, C., Simpson, D, Teasdale, C, Whalen, G, Bells, S., & Giovanetto, L. 2007. Intervening to promote early initiation of breastfeeding in the LDR.  *MCN Am. J. Maternal Child Nursing, 32*(2), 117-121. Implementation NOT ON CHARTS YET

Kontos, D. (1978). A study of the effects of extended mother-infant contact on maternal behavior at one and three months. Birth and Family J. 5(3), 133-140.**FT,** **RCT, maternal affectionate behavior**

Kostandy, R. & Anderson, GC. 2003. Kangaroo care in neonates: Effects on pain from hepatits B vaccine injection. Abstract # 353, pg. 191 at Research ShowCASE, April 4, 2003, CWRU, Cleveland, OH . Randomized controlled trial of 68 fullterm infants who received 30 mins of KC before injection, making sure mothers felt relaxed (which supposedly takes 10-15 mins). Then moms rotated infant to supine for injection in anterior thigh.After injection, infant turned prone for more KC comforting. Standard care infants lay undisturbed in crib for 10-15 mins before injection. HR, behavioral state, cry time measured before, during and after injection. **Fullterm, Pain, RCT, HR, Behav State, Cry time.**

**Kovach 2002.** FT. Most hospitals give KMC at delivery, some do APGARS

In KC.

Kramer M, Chalmers B, Hodnett E, Sevkovskaya Z, Dzikovich I, Shapiro S, Collet J, Vanilovich I, Mezen I, Ducruet T, et al. 2001. Promotion of breastfeeding intervention trial (PROBIT): A randomized trial in the Republic of Belarus, J. Amer Med Assoc, 285, 413-419. Multicenter trial of all ten parts of baby friendly initiative in relation to duration of BF and GI and respiratory infections. Independent effects of KC cannot be determined. **RCT, Fullterm, duration of Breastfeeding, infections. 3rd World**

Kritzinger, A., & Louw, B. 1999. Kangaroo mother care: A strategy to facilitate mother-infant communication interaction in high-risk infants in different contexts. Clinica: Applications in Clinical Practice of Communication Pathology. Monograph 4. University of Pretoria, pg. 31-46. **PT, maternal talk, maternal-infant interaction.**

Kritzinger A & Louw B. 2003. Clinical training of undergraduate communication pathology students in neonatal assessment and neonate-caregiver interaction in South Africa. S Afr J Commun Disord 50, 5-14. Development of a clinical training module in Early Communication Pathology for communication specialists to use with mothers at risk of infant neglect and abuse. Prenatal communication with mothers increased KMC and many other outcomes. Really a study about the communication module used and how the students learned neonatal assessment and how to influence mothers. **Education report, increased use of KMC after early communication.**