Value of Specialty Certification as a Kangaroo Caregiver

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ABSTRACT

Kangaroo care (KC), also known as skin-to-skin contact, saves lives, but fewer than 50% of newborns and mothers in U.S. hospitals receive KC because of lack of knowledge and skill competency. Because nurses can increase knowledge and skill competency through a certification course, the value of certification as a kangaroo caregiver and administrative incentives for certification as a kangaroo caregiver were evaluated in 71 neonatal intensive care and maternal–newborn unit nurses who completed an electronic questionnaire and the Perceived Value of Certification Tool. Nurses highly valued their KC certification, agreeing with 17 of 18 positive value statements. KC certification increased salary for a few, but institution-based incentives for KC certification are still limited and recognition of KC certification is needed.

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INTRODUCTION

The best care for newborns, according to the World Health Organization's (WHO) landmark publication about the five elements of care considered essential for all newborns (WHO, 1996), includes kangaroo care (KC), also known as *skin-to-skin contact*, chest–chest contact between a newborn and his or her mother that begins immediately after birth and throughout the first 6 weeks of life (Salam et al., 2014; WHO, 2009). But, fewer than 50% of newborns in U.S. hospitals receive KC (Engler et al., 2002; Franck, Bernal, & Gale, 2002; Hendricks-Muñoz et al., 2013). Even though KC has been shown to reduce infant mortality, enhance cardiorespiratory stabilization, increase initiation and exclusivity of

breastfeeding, reduce infections, and enhance infant growth and development (Boundy et al., 2016; Ludington-Hoe, 2011) and is recommended by the American Academy of Pediatrics (Feldman-Winter & Goldsmith, 2016) and the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN, 2016), fewer than 50% of newborns in U.S. hospitals receive KC (Engler et al., 2002).

Lack of knowledge and skill competency impede application of KC (Engmann, Wall, Darmstadt, Valsangkar, & Claeson, 2013), but when knowledge and skills were obtained, implementation increased (Hendricks-Muñoz et al., 2013). Knowledge and skill competency in KC are most commonly obtained from the United States Institute for Kangaroo

Care's (USIKC, 2015b) annual certification course. In many professions, completion of certification positively affects perceived value of certification (American Board of Nursing Specialties [ABNS], 2006; Brown, Murphy, Norton, Baldwin, & Ponto, 2010; Coleman et al., 1999; Sechrist, Valentine, & Berlin, 2006), but the Institute of Medicine (IOM) Standing Committee on Credentialing Research has identified a continuing need for research targeting the value of a credential to individual nurses (IOM, 2015). The perceived value of certification by nurses who successfully completed a 2.5-day course conveying comprehensive knowledge and skills building related to KC is not known. No studies could be found about certification as a KC specialist for preterm and full-term neonates even though certification has been available for 12 consecutive years and 647 nurses have KC certification. The purpose of this study was to describe the perceived value of certification as a certified kangaroo caregiver (CKC) in practicing neonatal intensive care unit (NICU) and/or healthy maternal–newborn care unit nurses.

BACKGROUND

Certification in Kangaroo Care

The International Council of Nurses defines *certification* as a “process used to designate that an individual has met established standards set by an agent (governmental or non-governmental) recognized to carry out this task” (Styles & Affara, 1998, p. 45). The ABNS (2005) defines *certification* as “the formal recognition of the specialized knowledge, skills, and experience demonstrated by the achievement of standards identified by a nursing specialty to promote optimal health outcomes” (p. 1). Certification as a kangaroo caregiver for the purposes of this study was defined as being a registered nurse who had successfully achieved the standards of the International Kangaroo Care Certification Board's process (USIKC, 2015b). Briefly, the requirements are attendance and participation in all sessions of a 2.5-day formal educational course; successful demonstration of core clinical skills competence for safe and effective KC; demonstration of competence in

understanding, reviewing, and assessing the evidence base of KC science (composed of more than 1,600 publications about KC [USIKC, 2015b]); provision of explanations of the mechanisms of KC's effects; development of a plan to implement KC's evidence base; incorporation of resources constituting and supporting the science and practice of KC; and successful completion (receiving a score of 80% or more) of the certification exam administered by the International Kangaroo Care Certification Board. The course contents, history of certification as a kangaroo caregiver, meaning of the certificate and certification program, rationale for certification, purposes of certification, and the role of the nurse with certification as a kangaroo caregiver are fully delineated in the first module of the certification course's Learner's Manual (USIKC, 2015b). An intensive educational course about KC has been offered annually since 2003 and is one method for obtaining the education and skills required to be eligible for the certification examination. Since 2003, 736 registered nurses, physicians, occupational/physical/respiratory therapists, lactation consultants/counselors, and home health-care workers have completed the KC certification course. NICU nurses represent 88% ($n = 647$) of CKCs, and mother–newborn (labor and delivery, antepartum, postpartum, lactation consultant) care nurses account for 10%, registered nurses who conduct home health care after discharge from maternity units are 0.5%, lactation consultants are 1%, and physicians are 0.5% of all CKCs as of 2014 (USIKC, 2015a). Recertification is required every 2 years and is completed by correctly answering questions posed for two designated recent data-based articles related to KC.

Certification in Nursing

Within the discipline of nursing, specialty certification demonstrates a standard of excellence and knowledge and experience in specialty practice that distinguishes one nurse from another (ABNS, 2006). Certification has come to be known as evidence of broad-based knowledge and skill in a special area of practice (Gaberson, Schroeter, Killen, & Valentine, 2003). Specialty certifications in nursing provide benefits to patients, employers, and the nurses themselves (Wade, 2009). Benefits of specialty certification to nurses are recognition from peers and other health-care professionals, enhanced career advancement, increased personal satisfaction, enhanced personal confidence, improved clinical abilities

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(Brown et al., 2010; Haskins, Hnatiuk, & Yoder, 2011; Prowant, Niebuhr, & Biel, 2007; Sechrist et al., 2006), and a sense of empowerment (have access to opportunity, information, support, resources, formal power, and informal power [Fitzpatrick, Campo, & Lavandero, 2011, p. e14]). Additional benefits to nurses are increased professional competence (Byrne, Valentine & Carter, 2004; Gaberson et al., 2003; Kaplow, 2011; Niebuhr & Biel, 2007; Sechrist et al., 2006), enhanced personal confidence in clinical abilities such as identifying complications and initiating appropriate interventions because of knowledge gained for certification (Niebuhr & Biel, 2007; Weeks, Ross, & Roberts, 2006), and improved self-reported quality of patient care (Schmalenberg & Kramer, 2008). The ABNS (2006) has reported that nursing certification enhances prestige, self-actualization, and professional advancement of certified nurses.

Perceived Value of Certification

The Competency and Credentialing Institute (2014) has related that certification is valued because certification “validates specialized knowledge, indicates professional growth, provides a professional challenge and enhances professional credibility.” Perceived value of certification is the presence or absence of benefits/rewards and positive attributions of certification held by each nurse, with identification of more benefits indicating a higher level of perceived value, according to the Competency and Credentialing Institute (2014). The operational definition of perceived value of certification for this study was the score obtained on the Perceived Value of Certification Tool (PVCT; Sechrist & Berlin, 2006), an established tool that was developed at the request of the ABNS. The PVCT assigns numerical values to a list of intrinsic and extrinsic rewards commonly believed to relate to specialty certification. “Intrinsic rewards [are] defined as motivators internal to the individual and linked to values of personal development of self-concept. Extrinsic rewards [are] external to the individual or [are] defined by others” (Byrne et al., 2004, p. 831). Examples of extrinsic rewards are salary increases, job title promotion, raised public opinion, increased marketability or employability, and opportunity for advancement.

Because no previous studies about KC certification or the value of certification as a kangaroo caregiver exist, we do not know which of the rewards/benefits, if any, are perceived in relation to being a

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specialist in KC. We designed the study to answer the research question: “What is the perceived value of certification as a kangaroo caregiver to registered nurses practicing in the NICUs and/or maternity, labor/delivery, and mother/baby units?” Conducting the study addressed the need for more research into the value of credentialing and certification identified by the American Nurses Credentialing Center (ANCC) and the IOM (2015).

METHOD

The evaluative study was determined to be exempt from human subject’s approval by the university’s institutional review board. All Registered Nurse CKCs who completed certification from 2010 through 2014 were sent by e-mail a Web link to a Qualtrics questionnaire including demographic data, the PVCT, level of use of kangaroo care tool, the kangaroo care innovation inventory, and one question, “In your place of employment, are there any incentives to become certified?” that provided 17 possible incentives for respondents to check. Data from the demographic, perceived value of certification, and incentive questions are reported here. The list of certified participants was made available by the USIKC and confirmed by examination of contact hour records provided by the Frances Payne Bolton School of Nursing of Case Western Reserve University that provided the contact hour certificates for all nursing professionals. Participants were given 30 days to complete the questionnaire. Several e-mail addresses were invalid and followed up by post. Only questionnaires with complete data sets were included in analyses. Confounding variables (length of time of certification, total years of nursing experience, respondent’s educational level; Gaberson et al., 2003) were collected by the demographic questionnaire. The established PVCT consisted of 18 items assessing the respondent’s perception of the value of certification using a 5-point Likert scale labeled *strongly agree*, *agree*, *disagree*, *strongly disagree*, and *no opinion*. A space for voluntary comments was included. Likert data were treated continuously and a higher mean value equated to a higher perceived

value of certification. Internal consistency for the PVCT on our data set was 0.93, similarly reported by Gaberson et al. (2003) to be 0.94, and discriminate validity of the tool is high (Bekemeier, 2009; Weis, 2012). Analysis of frequency counts, percentages, central tendency, and dispersion were conducted on all appropriate data using SPSS Version 22.

RESULTS

From 2010 through 2014, 394 health professionals representing eight countries completed certification as kangaroo caregivers. Of these, 359 (93%) were registered nurses living in the United States or Canada who were sent questionnaires. Several ($n = 96$) questionnaires were undeliverable to the e-mail address provided; 91 (25%) questionnaires were returned, 20 questionnaires had missing data and were excluded from data analysis, and 71 (19.8%) questionnaires provided the data reported here.

Sample Characteristics

The registered nurses were female (100%), had a bachelor's degree in nursing ($n = 46$; 65%) or diploma/associate's ($n = 17$; 24%) or master's ($n = 7$; 10%) or PhD/doctor of nursing practice ($n = 1$; 1%) degree. Nurses worked a mean 25.6 years ($SD = 11.75$); with a range spanning 2–45 years with 11 having practiced 40 years or more, 19 for 30–39 years, 21 for 20–29 years, 12 for 10–19 years, and 8 for less than 10 years. Forty-nine (79%) were employed full-time. Ten respondents had practiced KC for 20 years or more, indicating early adoption after the first reports of KC appeared in the literature 46 years ago (Klaus & Kennell, 1970).

The Registered Nurse CKCs practiced predominantly in a hospital setting ($n = 60$, 97%) with 23 (38%) being in neonatal intensive care, 14 (23%) in mother–baby/postpartum units, 7 (12%) in labor/delivery, 1 (2%) in newborn observation units, and 3 (5%) in high-risk antepartum units. Three (5%) reported being lactation consultants assigned across units and the remaining nurses reported having practiced in several of the units identified earlier, that is, labor and delivery and mother–newborn. When asked how long the nurses had been practicing with infants (healthy newborns and/or intensive care unit newborns), 49 (79%) of nurses had practiced with infants for all their years of practice. The majority were staff nurses ($n = 36$, 51%); others were lactations consultants ($n = 15$; 21%), were in management ($n = 6$; 9%), teaching ($n = 5$, 7%), or other

roles such as advanced practice nurse ($n = 3$; 4%) or developmental specialist ($n = 1$; 1%). Respondents practiced during the day shift ($n = 41$; 58%) or night shift ($n = 15$; 21%), and several rotated or had responsibilities for all shifts. Nurses practiced in Baby Friendly hospitals ($n = 22$; 31%) or hospitals pursuing Baby Friendly designation ($n = 26$; 37%), or non-Baby Friendly hospitals ($n = 23$; 32%). Many ($n = 50$; 70%) of the nurses held other certifications including International Board Certified Lactation Consultant ($n = 18$; 25%), lactation counselor ($n = 11$; 16%), fetal monitoring ($n = 2$, 3%), childbirth education ($n = 7$, 10%), bereavement ($n = 1$, 1%), and as registered nurse certified in neonatal care ($n = 5$, 7%).

Kangaroo Care Practice Characteristics

KC had been practiced for 1–38 years ($M = 9.02$; $SD = 7.75$), with three (4%) nurses reporting that they had practiced KC for 30 or more years, 7 (9%) for 20–29 years, 18 (25%) for 10–19 years, and 43 (60%) for less than 10 years. Ninety-six percent ($n = 68$) of respondents' institutions used KC, and 87% ($n = 59$) had written KC policies. The level of KC use in respondents' hospitals was routine in 60 (85%) hospitals and minimally used in 4 (6%). The remaining responses indicated that KC was used at birth as a standard of practice, but not well used thereafter or use was between minimal and routine, or dependent on management's presence, or KC's use was getting better even though many units had had a skin-to-skin policy in place for a long time that had not been really followed nor truly understood.

Perceived Value of Certification

For clarity in describing the findings, we collapsed the responses to the value statements so that positive responses of *strongly agree* and *agree* were scored as *agree* and negative responses of *strongly disagree* and *disagree* were scored as *disagree* as has been conducted before (Byrne et al., 2004; Gaberson et al., 2003; Sechrist et al., 2006). We next calculated the percentage of agreement with each value statement (Table 1). The percentages provided by CKCs indicated agreement with 17 of the 18 perceived value statements on the PVCT; most respondents disagreed with the value statements that certification increased salary and promoted recognition from employers. The Cronbach's alpha based on the sample was 0.93 for the perceived value of certification.

TABLE 1
Perceived Value of Certification by Kangaroo Caregiver Nurses

Perceived Value of Certification Tool Value Statement	Percentage of Certified Kangaroo Caregiver Nurses (<i>n</i> = 71) Who Strongly Agree and Agree With Value Statement
Intrinsic factors	
Enhances feelings of personal accomplishment	100
Indicates professional growth	100
Validates specialized knowledge	98.6
Provides evidence of professional commitment	98.5
Indicates attainment of a practice standard	97.3
Provides personal satisfaction	97.3
Enhances personal confidence in clinical abilities	95.9
Indicates level of clinical competence	94.5
Provides evidence of accountability	93.5
Provides professional challenge	90.4
Enhances professional credibility	87.7
Enhances professional autonomy	83.6
Extrinsic factors	
Promotes recognition from other health professionals	79.6
Increases consumer confidence	79.6
Promotes recognition from peers	78.1
Increases marketability	72.6
Promotes recognition from employer	67.1
Increases salary	12.3

The most frequently identified *values of certification* on the PVCT were enhanced feelings of personal accomplishment, indication of professional growth, validation of specialized knowledge, provision of evidence of professional commitment, provision of personal satisfaction, and indication of attainment of a practice standard. The most common responses

to the question “What are the *incentives to become certified* in your place of employment?” (Table 2) were reimbursement for examination fee, certification credentials on name tag or business card, advancement on the nursing clinical ladder, recognition at an annual recognition event, and reimbursement for education to obtain certification.

TABLE 2
Incentives Offered to Certified Nurses by Employers

In Your Place of Employment, Are There Any Incentives to Become Certified?	Number of Nurses Reporting the Incentive	% of Nurses Reporting the Incentive
Reimbursement for examination fees	25	36
Paid time off for taking examination	8	12
Reimbursement for education to obtain certification (review course fees, local education sessions, or study materials)	14	20
Advancement on nursing clinical/career ladder	16	23
Promotion to higher level position	3	4
Increase in salary after obtaining certification	9	13
One-time bonus payment after the certification	4	6
Reimbursement for continuing education	8	12
Pay for attendance at the regional and national educational meetings	6	9
Formal recognition as an expert in the field	13	19
Listing certifications and credentials on a name tag and/or business card	18	26
Recertification reimbursement provided	7	10
Annual recognition event (i.e., breakfast, luncheon)	9	13
Publication of names in institutional newsletter or other relevant literature	6	9
Plaque displaying list of certified staff	6	9
No incentives offered at the facility of employment	16	23

Certification Comments

Many voluntarily written comments were related to the value of certification. For example, “I am newly certified in KC, but I highly value this certification. I do not yet know what value this has for my employer” addressed the incentives for certification that may or may not exist in institutions. Another comment that reflected the value of recognition as being certified and the effects of certification on practice was “CKC designation added to my credentials and changed the focus of my teaching.” The effect of certification on practice was also acknowledged by two comments: “Doing the certification really helped solidify all the aspects of KC care into implementation” and “I practiced kangaroo care, but after certification, I incorporated it even more into practice.” Three comments reflected the value statement that certification provided personal satisfaction: “It was wonderful and I think it should be a goal of hospitals to certify a certain number of nurses and doctors every year” and “I have recertified once already and am preparing to do so again” and “I feel kangaroo care is extremely important to the survival of the human race.”

The value of certification as a kangaroo caregiver was questioned in several comments. One respondent wrote, “I was told that certification as a kangaroo caregiver was not a ‘recognized’ certification, so they would not reimburse me as they do for my neonatal intensive care certification,” and others wrote, “I don’t think it is looked on as a legitimate certification because there is no governing body as there is with the International Board of Lactation Consultant Examiners and no other requirements beyond one time attendance at a course and passing a test,” and “Wish that the certification would become a more recognized certification in hospitals to qualify for a yearly bonus.”

DISCUSSION

The PVCT measured the perceived value of certification and employer incentives for becoming certified as a CKC in 71 practicing NICU and/or healthy maternal–newborn care unit registered nurses. Certified nurses consistently placed a high value on

certification, and the most often reported incentives were reimbursement for examination fees, listing certifications on the name tag and/or business cards, and advancement on the nursing career ladder. The demographic data confirmed that broad representation of perinatal nurses, their ages and their lengths and places and shifts of employment was achieved, as is desirable in an exploratory study.

Value of Certification

The percentages of agreement with the value statements about certification among CKCs appeared to be similar to the percentages of agreement obtained in a study of certified perioperative nurses (Gaberson et al., 2003; Sechrist et al., 2006), and a study of 36 other nursing specialty certified nurses conducted by the ABNS (2006). But CKCs reported low percentages with extrinsic value statements, possibly reflecting the novelty of certification in KC. In all the previous referenced studies, the value statement with the highest agreement was that the certification “enhances feeling of personal accomplishments,” but in our study alone, all respondents agreed to the personal accomplishment value as well as the value “indicates professional growth,” a level of satisfaction with certification as a kangaroo caregiver not obtained by nurses with other certifications. The percentages demonstrated for the intrinsic factors of perceived certification value by our subjects support sustaining the new KC certification process. In relation to the extrinsic factors of the value of the certification, CKCs strongly did not agree with the statement that “certification increases salary.” Lack of agreement with the statement that certification increases salary has been reported before (Gaberson et al., 2003; Niebuhr & Biel, 2006; Sechrist et al., 2006), but CKC nurses are even less recognized by a salary level increase than their colleagues, possibly because of the novelty, slowly emerging awareness of certification as a kangaroo caregiver, and the continuing process to achieve accreditation as CKC by the ANCC (2014a). The knowledge and use of KC by nurses is still developing (Athanasopoulou & Fox, 2014; Baylis et al., 2014; Bergh et al., 2014; Higman, Wallace, Law, Bartle, & Blake, 2015; Johnston et al., 2014; Ludington-Hoe, 2011), and demand for certification in the field is slowly increasing (USIKC, 2015a), so the perceived value of certification is not yet optimal among nursing leadership. One other value statement was of note: most CKC respondents agreed that certification “increases consumer

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confidence” just as most other specialty certified nurses did (Gaberson et al., 2003; Sechrist et al., 2006). The high number of certified KC nurses who perceived the value of increased consumer awareness is probably due to the fact that parents of neonates often review the experiences of KC with their nurses. Enhanced value of being a CKC will come from using the initials, as has begun in publications (Ludington-Hoe, 2011; Stikes & Barbier, 2013), and answering questions about what the initials mean and how the CKC certification was obtained.

Incentives for Certification

Although most employers recognized certification as a kangaroo caregiver by reimbursing nurses for the examination fee or by listing the new credential on the nurses’ name tags, nearly one fourth of our respondents did not receive any recognition at their workplace for becoming certified. Furthermore, less than one fourth acknowledged other incentives that are known to increase the number of certified nurses, such as monetary support (i.e., salary increase), professional recognition (ADVANCE for Nurses, 2011; Hader, 2011; Sechrist et al., 2006), bonuses for certification completion, reimbursement for registration fees, and reimbursement for continuing education and recertification fees (ABNS, 2006; Smolenski, 2007), and advancement on the nursing/clinical ladder American Association of Critical-Care Nurses (AACN, 2006). Niehbuhr and Biel (2007) found that reimbursement for examination fees, listing of certification credentials on name tag or business cards, and reimbursement for continuing education costs were the top incentives for becoming certified, similar to our findings. In fact, more Magnet hospitals than non-Magnet hospitals reimburse certification expenses—because having certified staff is a criterion for obtaining and sustaining Magnet hospital designation (Boyle, Gajewski & Miller, 2012; Kaplow, 2011; Weeks et al., 2006). Magnet hospitals also have to regularly report on progress being made to increase the number of nurses with certification (ANCC, 2014b).

Issues About Certified Kangaroo Caregiver Certification

Several comments related that certification as a kangaroo caregiver was not recognized nor considered valid. Recognition is in part determined by awareness of the certificate; awareness can be enhanced by increasing the number of CKCs. The number

of CKCs is growing by 55–87 per year, but given that there are more than 13,000 NICU nurses and 48,000 perinatal nurses (based on professional association memberships), many more nurses with certification as kangaroo caregivers are needed to optimize awareness of the certification. Recognition can also be accomplished by having the certificate listed in the ANCC’s (2014a) *Demographic Data Collection Tool*, a listing of certifications appropriate for meeting Magnet hospital designation. Of the eight criteria needed for listing, certification as a kangaroo caregiver has met all but one: (The certification is independent of a specific class, course, or other education program). Some online lectures, webinars, and acceptable continuing education programs other than the annual intensive KC course offered by the USIKC were in place to partially satisfy this criterion by February 23, 2016. Once all elements of preparation for the certification exam are available from other sources than the one certification course conducted each year, finalization of listing will be possible but may take time because even International Board Certified Lactation Consultant certification, which began in 1985, was not listed in the Magnet Demographic Data Collection Tool until 2009.

Validation of the certificate is also bestowed in part by having the certificate and the certifying program accredited in the United States. The Accreditation Board for Specialty Nursing Certification (ABSNC, 2014) allows only “RNs and non-RN nursing team members supervised by another RN” to be certified; many nonnursing perinatal health professionals desire KC certification, too, so ABSNC accreditation has not been sought. But, accreditation by the Institute for Credentialing Excellence (2015) and the American National Standards Institute (2015) are in progress, as is listing by the AACN.

Future Studies

Future research should focus on the value of certification as a kangaroo caregiver for other stakeholders, such as employers, patients, and noncertified nurses, and for other CKCs such as respiratory therapists, occupational therapists, physicians, and lactation consultants or counselors, to facilitate targeting potential certified specialists. Studies linking certification to patient outcomes are needed to guide modifications in the program and delineate outcomes attributable to certification status as justification for the specialization.

Strengths and Limitations

The strengths of this study are that the study is the first reporting the value of certification as a kangaroo caregiver and that the responses were truly anonymous and free of researcher bias. Limitations were the small number of respondents, and the sample being limited to registered nurses, preventing generalization of perceived value of certification to other professionals (i.e., physicians, registered physical therapists, respiratory therapists) and to nursing CKCs who may not be registered nurses but practice in the same specialty (i.e., licensed practical nurse). Another limitation is that the value included in the PVCT instrument did not include perceived value to improve patient care, so generalization to improved patient care cannot be made.

Implications for Practice

Caregivers who want to gain specialty knowledge and become change agents for KC practice should become CKCs. The initials “CKC” should be openly displayed to increase awareness of certification status. The USIKC’s subsidiary, the International Kangaroo Care Certification Board, should continue to strive to have the course meet international, national, and Magnet certification criteria. All CKCs should document the impact their certification has had on care so that administration has data to support acknowledgment of the certificate and the accomplishments of the CKC. And finally, all CKCs should unite to guide the evolution of the CKC course and develop evaluation benchmarks and tools to document and advertise long-term changes in KC practice by CKCs.

CONCLUSION

Registered nurses certified as kangaroo caregivers highly valued their certification. Institution-based incentives for certification as a kangaroo caregiver are still limited, and the number of nurses paid a salary increase because of certification is minimal, but does exist. Recognition and accreditation of the certificate and certification program for kangaroo caregivers are proceeding, which should positively impact values of and incentives for certification.

Disclaimer: The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any agency of the U.S. government.

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