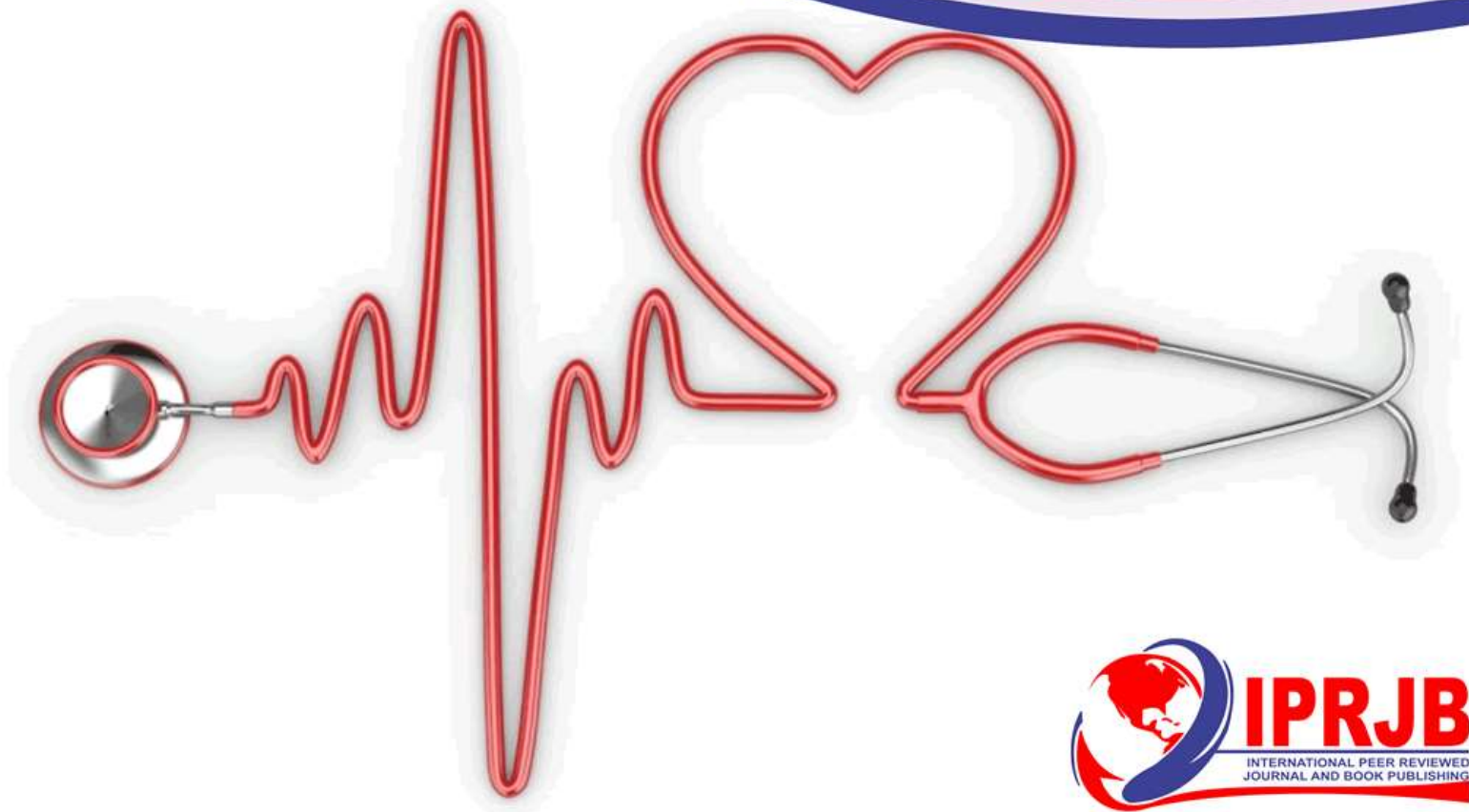


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**Determinants of Implementation of Kangaroo Mother Care Services among Healthcare Workers in Makeni County, Kenya**



**Determinants of Implementation of Kangaroo Mother Care Services among Healthcare Workers in Makueni County, Kenya**



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**Abstract**

**Purpose:** Kangaroo Mother Care (KMC) entails infants and mothers having constant skin-to-skin contact. KMC is done in the hospital after delivery to preterm infants or after early discharge. Mothers or caregivers are sensitized on proper positioning, breastfeeding, hygiene, and preventive measures to protect infants from infections. Proper follow-up is critical to ensure effective results are achieved. The use of KMC was endorsed by the World Health Organization (WHO) as routine care for preterm infants with a birth weight of  $\leq 2000$  grams, especially the clinically stable infants. This recommendation was based on the available moderate-quality evidence that it works by providing warmth (thermal care) and increasing breastfeeding opportunities irrespective of setting, birth weight, or gestational age. Also, KMC has been strongly acclaimed and used as a natural thermoregulator, infection prevention, and nutrition for preterm infants, which are critical for physiological functions that are strongly affected by physical immaturity. Although this technique offers quality care to these babies, its implementation is low. There is a need to determine the suitable methods to improve its implementation in Kenya's healthcare facilities. This study aimed to determine factors influencing the implementation of KMC in Makueni County health facilities.

**Methodology:** The study was conducted in maternity units of six sub-county hospitals (Makueni county referral hospital, Makindu sub-county hospital, Kibwezi sub-county hospital, Mbooni sub-county hospital, Kilungu sub-county hospital, and Sultan-Hamud sub-county hospital) in Makueni County. Cross-sectional study design with mixed methods was used. Semi-structured questionnaires and KMC checklist were filled by the researcher and research assistants. The convenience sampling technique was carried out, and 90 healthcare providers and 6 Key Informants were interviewed. Data was analyzed using version 23 of a statistical package for social sciences using descriptive and inferential statistics.

**Findings:** The study results reveal that young health care providers portrayed better KMC implementation compared to the old ( $r=-.210$ ,  $p=0.047$ ). In relation to gender, female health care providers had better KMC implementation compared to the male ( $r=-.290$ ,  $p=0.006$ ). Knowledge ( $r=.282$ ,  $p=0.007$ ) and health workers' perception of KMC ( $r=.245$ ,  $p=0.02$ ) had a positive and significant relationship with implementing KMC. Perception ( $\beta=1.149$ ,  $p=0.05$ ) and funds ( $\beta=0.958$ ,  $p=0.05$ ) had a positive and significant effect on implementing KMC. R squared indicated that jointly, age, gender, perception, and budget accounted for 29.4% of the overall variation in the KMC implementation. Results demonstrated a high level of KMC (33.3%) implementation among the health facilities. The study concluded that funds and collaboration had a positive and significant effect on implementing KMC.

**Unique Contribution to Theory, Practice and Policy:** The study recommends that the hospital management should ensure there is provision of adequate resources to support KMC implementation. In particular, the hospital management should focus on strengthening physical and human resources. There is also a need to link all relevant programs, such as essential newborn care and Integrated Management of Neonatal and Childhood Illnesses (IMNCI), to support KMC implementation.

**Keywords:** *Implementation, Kangaroo Mother Care Services, Healthcare Workers*

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## INTRODUCTION

Kangaroo mother care (KMC) is a form of preterm baby care that involves the mother (or any caregiver) and her newborn having constant skin-to-skin contact (WHO, 2015). The World Health Organization (WHO) endorsed Kangaroo Mother Care (WHO) in caring for preterm newborns whose birth weight is  $\leq 2000$  grams and are clinically stable. This recommendation was based on moderate-quality evidence available (WHO, 2015b). KMC works by providing warmth (thermal care) and increasing breastfeeding opportunities irrespective of the setting, birth weight, or gestational age (MCHIP, 2012).

According to the conference held in Kigali in 2014 by the international network of Kangaroo mother care, Rwanda, it was reported that KMC is estimated to be practiced in just 5% of the global births hence concluding that there is poor uptake of KMC (Bergman, 2015). Ugandan facilities have boosted their campaign of KMC by providing success stories through charts and pamphlets or photographs of mothers who had previously been admitted doing KMC (Bergh *et al.* 2012). Implementation and utilization of KMC in low- and middle-income countries will help reduce neonatal morbidity and deaths and move towards achieving SDG 3 which aims to reduce newborn deaths to as low as 12 deaths per 1000 live births (WHO, 2015).

In western Kenya, particularly in Bungoma and Busia Counties, the county innovation challenge fund, with Save the Children's support, has rolled out KMC in 25 health facilities. Health workers underwent KMC training. A total of 2,817 premature babies were nursed by the end of the pilot scheme with KMC leading to a 6% drop-in neonatal mortality rate at the facilities using KMC (MOH, *KMC clinical implementation guidelines*, 2016). UNICEF Kenya, among other partners, has supported the ministry of health in developing policy and technical guidelines KMC roll out in Kenya. Kakamega County in the western region has significantly implemented KMC in about 25 high- volume health facilities (MOH, *KMC clinical implementation guidelines*, 2016).

### **Healthcare Provider Factors Influence the Implementation of KMC in Health Facilities**

Globally, the healthcare system has been burdened with demonstrating Top quality care, equipped with the latest facts. The proven-based practice is critical in nursing and midwifery as it influences patient outcomes. The evidence-based practices can be provided globally to boost preterm babies' outcomes through the care of KMC, but the challenge remains in the implementation process. Therefore, an implementation strategy is key in executing the evidence-based practice in KMC (Wilma *et al.*, 2015).

According to Jamali *et al.*, 2019, the inspiration and eagerness of health care providers to KMC is critical to the effective execution of KMC at the facility level. Research conducted by Chan *et al.* (2016) identified factors influencing nurses in implementing KMC. The identified factors include; poor infrastructure, inadequate knowledge, belief, ambivalent attitude, lack of standard operational procedures, inadequate skills, lack of policy, and institutional leadership. Among these factors, the top identified as lack of standard operational procedure (SOP), belief, and lack of policy. Lack of training among health care workers on KMC has been identified as a major barrier to its implementation. All staff should be encouraged to advice mothers on KMC without the need for a written order from a physician for application of KMC (Cattaneo *et al.*, 2007).

In a study by Seidman *et al.* (2019), managers and healthcare workers identified lack of training

as a key hindrance to KMC practice as none of the facility and community level health care workers had gone through any training in KMC. They also identified training as one of the staff capacity strengths, which is a basic requirement for implementing KMC at the facility level. As a result of lack of training, individuals lack the knowledge and experience needed for the implementation. According to a study done in Ghana, training the trainer model should be discouraged. This involves the use of the trained staff to train others. The model may transfer information and misinformation to others, hindering experimental, collaborative, and reflective learning. The use of unqualified or inexperienced staff in KMC classes should be discouraged as this may dilute or distort the KMC knowledge (Nguah et al., 2011).

Health care workers need to be trained on the three main components of KMC, which include: skin-to-skin position against a mother or a caregiver's chest, exclusive breastfeeding, as well as early discharge, and ambulatory care with regular check-ups (Bergh et al., 2016). A study done on the implementation of KMC in Columbia showed that apart from the basic education provided in school as part of the curriculum for health care workers, there should be a program specific for training health care workers on KMC to improve the KMC services. The in-house training should be accompanied by a practical experience of the health care workers visiting other facilities and countries which are doing well in KMC implementation (Bergh et al., 2016). The availability of a multidisciplinary team for KMC can champion its implementation (Bhutta et al., 2014).

In a multi-country study from Malawi, Mali, Rwanda, and Uganda, researchers saw the need to train both in-service and pre-service health workers and expand the training to healthcare personnel, including administrators and policymakers (Bergh, 2016). This will also facilitate the uptake of KMC.

Sociocultural norms and practices also affect the implementation of KMC. A study identified that some cultures do not allow male members of the family to practice KMC hence resulting in subjecting female members, especially the mothers, to remain with the newborns for KMC. Other sociocultural concerns include acceptance and support of KMC in households (Yue et al., 2020). Mothers may be in fear of practicing KMC due to ridicule from other family members as well as the community at large. A study in Uganda identified the values and beliefs of mothers to be challenging factors, as mothers believed they could not place a neonate with vernix on their abdomen before washing it off. They believe a baby should be cleaned before breastfeeding should also be discouraged as this poses a danger to the newborn's health. (Byaruhanga et al. (2019) highlighted the importance of understanding the barriers of KMC, including sociocultural barriers, as this will help implement KMC.

### **A Stages-of-Change Model**

The model provides for three phases: pre-implementation, implementation, and institutionalization. Each phase has two stages or 'steps,' starting with the creation of awareness and commitment to implementation (pre-implementation phase), followed by preparation for implementation and initial implementation (implementation phase), and ending with integration into routine practice and sustaining practice (institutionalization phase).

The tool is divided into 17 different topics covering the following aspect of KMC implementation: 1 Health care facility 2 Neonatal and kangaroo mother care 3 Skin-to-skin practices 4 History of



KMC implementation 5 Involvement of role-players 6 Resources 7 Kangaroo mother care space: continuous KMC 8 Neonatal unit or nursery: intermittent KMC 9 Feeding and weight monitoring 10 Records in use for KMC information 11 KMC education 12 Documents 13 Referrals, discharge and follow-up 14 Staff orientation and training 15 Staff rotations 16 Strengths and challenges 17 General observations and impressions.

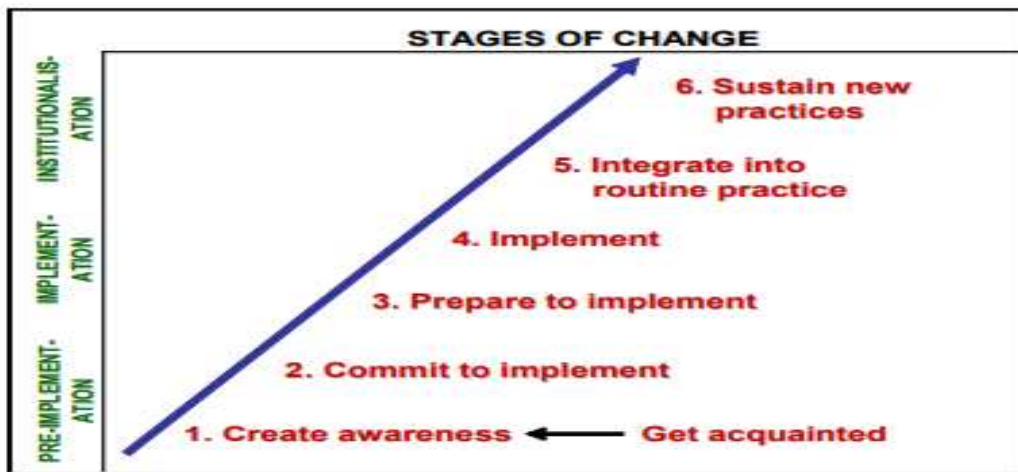


Figure 1: Stages of Progress in Implementation

### Research gaps

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### Socio Demographic Characteristics

Table 1: indicates that 41(45.6%) of the respondents were aged 18-28 years, with 64 (71.1%) female. Professionally, 90% of the participants were nurses, 8.9% were clinical officers, and 1.1% were medical officers. Further, 36 (40%) of the health care workers had work experience of 4 to 6 years.

**Table 1: Socio-Demographic Characteristics**

Variables		N (%)
<b>Age</b>	18-28	41(45.6)
	29-39	28(31.1)
	40-50	13(14.4)
	51-60	8(8.9)
<b>Gender</b>	Male	26(28.9)
	Female	64(71.1)
<b>Professional qualification</b>	Nurse	81(90)
	Clinical officers	8(8.9)
	Medical officers	1(1.1)
<b>Years of working</b>	1-3	25(27.8)
	4-6	36(40)
	7-9	5(5.6)
	>9yrs	24(26.6)

**Key: N=Count, %-percentage**

## Healthcare Provider Factors Influencing the Implementation of KMC

Figure 2: (gives absolute numbers) shows that, 42% of the health care workers stated to have inadequate skills to practice, 33% were reluctant to KMC practice and 40% stated they lacked sufficient time to practice KMC due to increased work load. This implies that 15% Healthcare workers (including the only Doctor interviewed) were KMC compliant and champions of KMC in the health facilities. The Healthcare workers also reported that 68% mothers were not willing to practice KMC, 47% feared of the baby safety during KMC, 22% had contrary beliefs to KMC practice. The contrary beliefs finding in this study could point to long held customs and practices among the community for example giving birth to premature babies is a curse. As for mothers not willing to practice KMC, this study did not seek the underlying factors but it is the researcher's opinion that the mothers could be unstable mentally due to the family and community perspective.

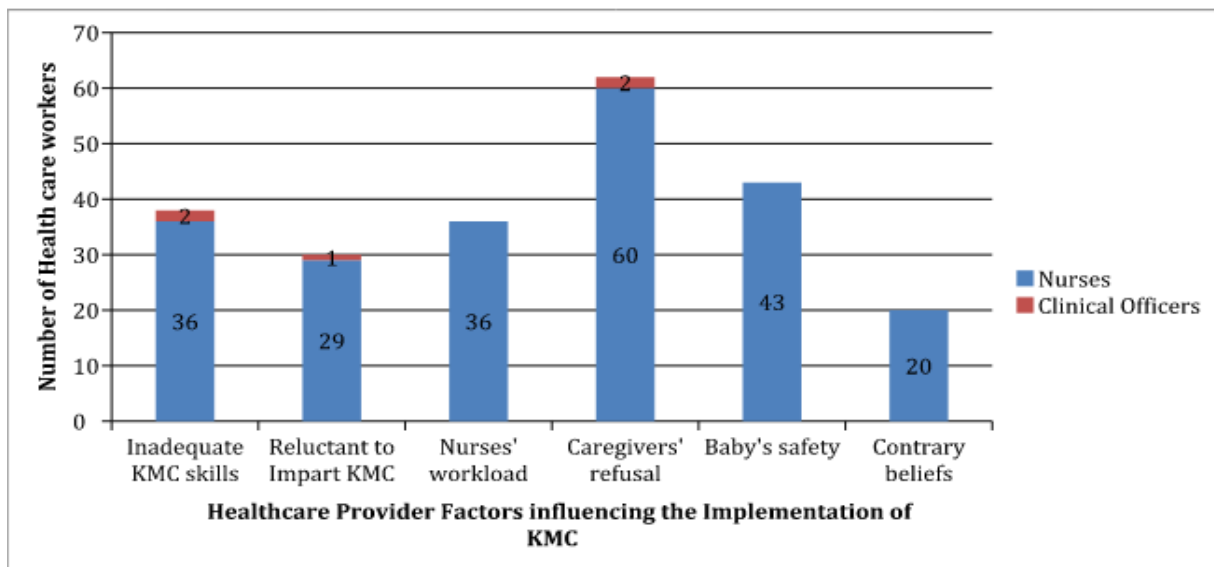


Figure 2: Healthcare Provider Factors Influencing the Implementation of KMC

## Relationship between Healthcare Provider Factors and Implementation of KMC

The results in Table 2 shows that there was a statistical significant relationship between level of KMC implementation with age, gender, knowledge of the respondents and their perception to KMC. Young health care providers portrayed better KMC implementation compared to the old ( $r = -.210$ ,  $p = 0.047$ ). In relation to gender, female health care providers had better KMC implementation compared to the male ( $r = -.290$ ,  $p = 0.006$ ). Knowledge ( $r = .282$ ,  $p = 0.007$ ) and health workers' perception of KMC ( $r = .245$ ,  $p = 0.02$ ) had a positive and significant relationship with implementing KMC. Health care providers who were knowledgeable with better perception of KMC had better implementation of KMC.

**Table 2: Correlation between Healthcare Provider Factors and Implementation of KMC**

		Implementation of KMC	Age	Gender	Professional qualification	Years of work	Knowledge	Training	Perception on KMC
Implementation of KMC	Pearson Correlation	1							
	Sig. (2-tailed)								
Age	Pearson Correlation	-.210*	1						
	Sig. (2-tailed)	0.047							
Gender	Pearson Correlation	-.290**	-0.06	1					
	Sig. (2-tailed)	0.006	0.576						
Professional qualification	Pearson Correlation	0.195	-0.088	-.230*	1				
	Sig. (2-tailed)	0.065	0.41	0.029					
Years of work	Pearson Correlation	0.013	.576**	-0.108	0.078	1			
	Sig. (2-tailed)	0.906	0.000	0.31	0.463				
Knowledge	Pearson Correlation	.282**	0.093	0.052	0.045	0.084	1		
	Sig. (2-tailed)	0.007	0.383	0.626	0.676	0.434			
Training	Pearson Correlation	-0.065	-0.194	.231*	-0.119	-0.136	-0.185	1	
	Sig. (2-tailed)	0.543	0.067	0.028	0.263	0.201	0.081		
Perception on KMC	Pearson Correlation	.245*	0.161	0.000	0.116	.360**	-0.2	-.381**	1
	Sig. (2-tailed)	0.02	0.131	1	0.275	0.000	0.059	0	

### Healthcare Providers' Factors Influencing the Implementing Kangaroo Mother Care in Health Facilities

The results of the study identified inadequate skills, uncooperative mothers, reluctant to practice, fear of baby safety and contrary beliefs in relation to KMC as the health care factors influencing the implementation of kangaroo mother care.

In the study, 42% of the respondents stated to have inadequate skills to practice KMC. A study by Flynn et al., (2010) examining nurses' knowledge and attitude regarding KMC has similar results. The results of the study are in agreement with that of Chan et al. (2016) which also identified inadequate knowledge as one of the factors influencing KMC practice. This may be due inadequate training among health care workers on KMC.

The results are contrary to study by McGowan et al., (2017) where more than 65% of nurses were relatively knowledgeable about care provided during KMC. The differences in results may be attributed by the use of different knowledge assessment tools. Among the health care workers 33% were reluctant to practice. This may be due to having inadequate skills, having a contrary believe to the practice or even due to increased workload hence not giving a priority to the practice.

The health care workers also portrayed to have strong belief to practice KMC with 22% of them having contrary belief to the practice. The results are similar to a study done among neonatal nurses on their knowledge and beliefs where nurses portrayed to have strong to very strong positive beliefs regarding KMC (McGowan et al., (2017). These finding also concur with Blomqvist et al., (2010) and Chia et al., (2006) studies. Healthcare workers who believe on the practice may be in a better position to practice and even encourage mothers on the benefits of KMC.

The results of the study shows that 68% of healthcare workers identified mothers who refused to practice KMC as one of the challenge the implementation of KMC. A study by Anderzén-Carlsson



et al., (2014) highlighted on lack of understanding between healthcare workers and mothers to be a hindering factor to KMC practice. Anderszen described KMC practice to be restorative yet very draining experience for parents. Provision of a suitable environment that is spacious and encourage privacy for mothers may encourage cooperation among the parents hence making it easy for healthcareworkers to practice KMC.

Fear of the baby safety when practising KMC was expressed by 47% of the health care workers as a factor hindering the practice. The fear was in concern of the neonates receiving other care such as feeding via a nasogastric tube, intubated or with a venous line. The results of the study concur with Flynn et al., (2010) study and Chia et al., (2006) where neonatal unit nurses had fear to practice KMC among the neonates. KMC was encouraged as a way of involving the parents in care of their neonates as well as help in the neonate neurodevelopment especially for neonates who needed long term hospitalization.

Increased workload to the health care workers was identified to be hindering KMCpractice. Among the health care workers, some were of the view that KMC practice interrupts caregiving keeping nurses confined to the bedside interferes with completionof their tasks and they are not able to provide other care to neonates with mothers practising KMC. The results are similar to Flynn et al., (2010) which also identified workload among the nurses to hinder KMC as they considered it time consuming.

### **Conclusion**

It demonstrated a statistically significant relationship between gender and years of working with level of KMC implementation with the female as well as those with more years of experience showing a high level of KMC implementation

The study concluded that healthcare provider factors such as inadequate skills, caregiver's refusal to practice, staff reluctant to practice KMC, fear of baby safety and contrary beliefs in relation to KMC as the health care factors negatively influencing implementation KMC.

### **Recommendations**

Among healthcare provider factors negatively influencing KMC, inadequate skills, reluctance to practice KMC and work load were identified. There is need to for further staff training to equip healthcare workers with knowledge and skill on KMC.