

THE CONTRIBUTION OF NURSE-MIDWIVES TO THE PPIUD INITIATIVE: THE EXPERIENCE IN SIX COUNTIES IN KENYA.

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ABSTRACT

Introduction: Nurse-Midwives are the most accessible frontline health workers in Kenya. They provide critical maternal and neonatal health services, particularly at primary level, including post-partum family planning services. The immediate post-partum intrauterine device (PPIUD) is convenient, efficient and safe, has low complication rates and eliminates the need for return for a contraceptive method. However, its uptake remains dismally low in developing countries like Kenya.

Methodology: This was a descriptive retrospective study based on routinely collected information of the Kenya PPIUD project undertaken in six teaching and referral hospitals selected based on catchment area, number of deliveries, infrastructure and personnel to support continuous learning. Training on provision of PPIUD services was performed, followed by an evaluation of the proficiency, complication and removal rates by cadre.

Results: A total of 973 health providers were trained. Majority (82%, 796) were registered nurses, while doctors made up 11% (109). Overall, 1,628 PPIUD insertions were performed, with 70% (1,137) following vaginal delivery. Overall, 39% (612) of the Health care providers were rated as experts (≥ 30 PPIUD insertions). Amongst nurses, almost half 46% (602/1294) were rated as experts. Of all PPIUD insertions, only 2.5% (40) reported an expulsion or a removal.

Discussion: Nurses can provide PPIUD services safely and task-sharing of PPIUD services with nurses provides a unique opportunity for increasing coverage of post-partum family services as nurses form the bulk of the health workforce and work in all peripheral health facilities.

INTRODUCTION

Family planning [FP] a key life-saving intervention. It is also a critical strategy for improvement of local, regional and global development goals. Postpartum family planning [PPFP] permits mothers to avoid macro- and micro-nutrient deficiency. It can also avert 30% of maternal mortality and 10% of child mortalities[1]. Despite the accepted value of PPFP, Demographic Health Survey data from 27 countries show that 95% of women with infants want to avoid a pregnancy in the next 24 months. However, 70% of them are not on a contraceptive by the time they leave the health facility [1, 2]. Amongst women who

wished to delay or prevent future pregnancy, 50% had an unmet need for family planning services [3].

Kenya's FP program has been among the most successful in Sub-Saharan Africa. However, a large unmet need for FP services; increased vulnerability to unsafe abortions from unintended pregnancies; and risk of mother-to-child transmission of HIV pose challenges to this success.[4]. Despite introduction in the 1990's and incorporation into policy in 2009, Postpartum intrauterine device [PPIUD] insertion uptake is still < 1% [4].

Following the implementation of the Free Maternity

Policy from June 2014, the number of institutional deliveries has risen from 47% to 61%. Based on the 2014 Kenya Demographic Health Survey (KDHS), 62% of the women reported skilled birth attendance, with a third being assisted by a nurse-midwife and a quarter by a doctor [5]. However, the proportion of postnatal women leaving the facilities without a contraceptive method remains high.

For an effective PPIUD program to be realized, it is imperative to consider existing gaps in the numbers and skills of the health personnel, as well as the attendant opportunities and challenges [1]. At the heart of every health system, the workforce is central in advancing health. There is ample evidence that worker numbers and quality are positively associated with positive maternal and child survival [6]. Workers function as gatekeepers and navigators for effective or wasteful application of all other resources [6].

Workforce imbalances exists not only in the numbers' and the geographical distribution of the available health workers but also the range of skills [7]. The resulting crisis in many developing countries is characterized by: severe shortages; inappropriate skill mixes; and gaps in service coverage. Collectively, these place Sub-Saharan Africa at the epicenter of global health workforce crisis [6]. Kenya is one of the 36 countries in Africa incurring a critical shortage of health workforce. This has adversely affected overall quality and access, thereby posing a challenge to achieving universal health coverage [8]. Presently, the overall 6,675 medical doctors, including about 400 Obstetricians and Gynecologists, are expected to cater for over 42 million Kenyans. Nurse-Midwives constitute the majority of obstetric health personnel in Kenya [45,018]. They provide critical maternal and neonatal health services, particularly at the Primary health care level [8].

The World Health Organization's [WHO] recommendations in optimizing health worker roles seek to improve access to key maternal and newborn health interventions through task-shifting. This intends to help address critical health workforce shortages that impede progress towards the health-related goals. [7]. Task-shifting refers to the re-assignment of specific tasks, where appropriate, to health cadres with shorter training and fewer qualifications. This provides for rational redistribution of tasks among

health workforce teams[9]. WHO's recommendations on task shifting places high value on institution of quality assurance mechanisms that suffice to earn the confidence of service users, providers and governing bodies [9]. Task-shifting improves access to cost effective and lifesaving services. However, consensus has emerged that there is need to define which key interventions can safely and effectively be delegated [7]. Moreover, effective task-shifting must be supported by adequate training and retraining, the presence of a functional referral system, and adequate stakeholder involvement in planning and implementation. This will ensure acceptability, effective regular supportive supervision, availability of requisite supplies and commodities among others. [9].

This paper seeks not only to highlight the contribution of nurse-midwives in the PPIUD program, but also the success of task-sharing.

METHODOLOGY

Study context: Kenya adopted and adapted the WHO recommendations for task-shifting and developed task sharing guidelines, that recommended professional cadres be offered additional training to deliver interventions that were not necessarily within the competencies that formed part of their initial training [8]. WHO recommends that nurse-midwives should insert and remove intra-uterine devices, an effective and feasible approach to contraception that may also reduce inequalities' by extending care to underserved populations [7].

FIGO through KOGS embarked on building the capacity of nurse-midwives to institutionalize PPIUD services in Kenya as a cost-effective method of family planning. This was to address the existing unmet need for FP among post-partum women. Competency-based training that utilized humanistic models. Following training, regular supportive supervision was instituted.

Study design and site selection: This was a descriptive retrospective study based on routinely collected information of the Kenya PPIUD project. This study is part of a broader programme of work that sought to strengthen the capacity of health professionals in the provision of PPIUD services through provision of continuous learning to enable

scalability of services in the pre- service and on-job training and is described elsewhere in detail[10]. The study was undertaken in six large referral and teaching hospitals that were selected based on large catchment area, number of deliveries, infrastructure and personnel to support continuous learning. The selection and set-up of the study sites is described in detail elsewhere[10].

Sample size and sampling strategy: This being a programmatic evaluation the project intended to sample all women attending ANC, latent phase of labor, un-complicated post abortion clients and immediate post-partum who meet the eligibility criteria. All women were sampled in line with the national guidelines that counselling for FP should be a part of the antenatal package of services captured in the Ministry of Health (MOH) 405 Antenatal Care (ANC) register. Those who are not counseled during ANC were provided the information in early labor and immediate postpartum period and allowed to choose a method of choice. Contraception provision among women who had an abortion is an integral component of comprehensive post-abortion care services in line with the MOH guidelines.

Study procedures and data collection: Following National master trainer's trainings, clinicians in selected facilities taught the didactic and practical curriculum. Pre-post course assessment was used to evaluate the capacity of health professionals during and after training. Pelvic mama U models were used to achieve PPIUD insertion competency in the classroom before moving to clinical practice. Patients were recruited during prenatal visits, in early labor, and postpartum. Patients were counseled on all family planning methods including PPIUD and informed, voluntary consent was obtained. All clinical PPIUD insertions were supervised or performed by experienced trainers using a long Kelly's forceps or by hand during caesarean section. Post insertion instructions were given and follow-up done[6].

Data were collected electronically using Comcare mobile data platform between 1st of December 2015 to June 2017 on a tablet and transmitted to national office for data management, cleaning and query resolution. A health worker and patient module and were used for data collection. In the health worker module, anonymized health worker data that included

the cadre, highest training, number of insertions and their outcomes were collected while patient level data focused on the mother's characteristics, type of delivery and any complications or removals.

Data analysis: Descriptive statistics were undertaken and data are presented stratified by cadre, number of insertions (categorized by proficiency level) and type of delivery.

Ethics: Ethical approval was obtained from Kenyatta National Hospital/ University of Nairobi Ethical Review Committee [KNH /UON/ERC].

RESULT

The health cadres trained are shown in Table 1. The majority of those trained were nurse-midwives (82%, 796), while only 11% were medical officers.

Table 1. Cadres of health providers trained

Health Providers Trained	Numbers
Doctors [medical officers]	109
Nurse-midwives	796
Clinical officers [CO]	58
Obstetricians & Gynaecologists	10
Total health care providers trained	973

A total of 49,345 deliveries were conducted during this study. Among these, 1,628 consented to have PPIUD inserted. Of the PPIUD insertions, 70% (1,137) occurred following vaginal delivery, while 30% (491) followed Caesarean section. However, these proportions varied among hospitals as shown in Table 2.

Table 2. Number of deliveries and PPIUD insertions among hospitals

	SVD No. (%)	CS No. (%)	TOTAL
Deliveries	49345	12298	49345
PPIUD Insertions	1137 (70)	491 (30)	1628
PPIUD Insertions by hospital			
1	29 (13)	191 (87)	220
2	147 (76)	44 (23)	191
3	137 (86)	23 (14)	160
4	384 (86)	63 (14)	447
5	303 (71)	121 (29)	424
6	137 (73)	50 (27)	187

Key: SVD – spontaneous vertex delivery; CS – Caesarean Section; PPIUD – Post partum intrauterine device

Table 3 shows the number of insertions by the various cadres of health care providers. Majority of the insertions (81%, 1,323) were performed by nurses, mostly following vaginal delivery. Of the insertions done, 40 expulsions were reported, of these 32 were from nurses while 8 were from doctors. In addition, 20 women requested for removals. However, the complication rate was low given the total number of insertions done, 2% (32/1323) and 3% (8/241) for nurses and doctors respectively.

Table 3. Number of insertions by various cadres.

Cadre of provider	SVD	CS	Total
Obstetrician & Gynaecologist	14	14	28
Medical Officers	19	194	213
Nurse-Midwives	1071	252	1323
Clinical Officers	23	5	28
Others	10	26	36
Total	1137	491	1628

Key: SVD – spontaneous vertex delivery; CS – Caesarean Section

Of the provider data available (1815 insertions), 90% (1628) had successful IUD insertions. However, 38 health care providers did not have provider identifiers to help determine the number of insertions done. Using the remaining data on 1,590 PPIUD insertions, the skill level of the health care providers at the end study was evaluated based number of insertions done as shown in Table 4. Overall, 39% (612) of providers were rated as experts (≥ 30 PPIUD insertions) while 41% (655) were still novices. Amongst the nurses, almost half (46%, 602) were experts, while only 3% of other cadres attained expertise.

Table 4: Skill level of PPIUD insertion by cadre

	Total	Nurse-midwives	Other cadres	P value
Beginner (1 – 9 insertions)	655 (41%)	436 (34%)	219 (74%)	<0.001
Proficient (10 - 29 insertions)	323 (20%)	256 (20%)	67 (23%)	
Expert (≥ 30 insertions)	612 (39%)	602 (46%)	10 (3%)	
Total	1590	1294	296	

DISCUSSION

Overall, these data demonstrate that PPIUD is a safe and acceptable mode of contraception with low complication rates. This service can be effectively delivered by nurses and mid-wives, providing an opportunity for optimizing service provision through task-sharing [1].

Majority of the health care providers trained were nurses. At the end of the study almost half of the nurses attained expertise at PPIUD insertion (≥ 30 insertions), with 94% of the insertions following vaginal delivery being inserted by nurses. Conversely, only 3% of the other cadres attained expertise. Despite the fact that nurses leading the labor process are responsible for delivery of most of the health care interventions, these findings demonstrate that nurses can competently perform PPIUD insertion. Therefore, with the low doctor/ patient ratios observed in Low and Middle income countries (including Kenya), PPIUD service provision can be task-shared with nurses and mid-wives to improve coverage, as they form the bulk of the health workforce in the peripheral health facilities. Task-sharing has been recommended by the World Health Organization as one of the approaches for optimizing existing health workforce[7] and has been adopted in Kenya[8]. Task-sharing has shown resounding success in the management of HIV, TB and non-communicable diseases. Similar strategies should be considered for PPIUD services[11]–[13].

Given the high vulnerability to repeat pregnancy during puerperium, the presently high unmet need for contraception and the increased risk of unsafe abortion, the competent and timely provision of PPIUD services has the potential to ultimately enhance safe motherhood, thereby reducing the burden of obstetric morbidity and mortality.

CONCLUSION

We have demonstrated that nurses can provide PPIUD services safely. Nurses form the bulk of the health workforce and work in all peripheral health facilities and task sharing of PPIUD services will increase coverage but also provide convenience to women through accessibility of these services in the immediate postpartum period

AUTHOR CONTRIBUTIONS

The listed authors participated in design, planning and manuscript writing. WS and JM helped with the data retrieval, BE and KA did the statistical analyses and interpretation of the findings.

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CONFLICT OF INTEREST

Though the authors work in the FIGO PPIUD project, FIGO had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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