Influence of Expanded Free Maternal Care Programme on Delivery of Quality Health Care in Maternity Units in Kajiado County

Richard Wachira Magondu[1*], Wanja Tenambergen[1], and Fredrick Ndede[1]
[1]Department of Health Systems Management, Kenya Methodist University, Nairobi Kenya
[*]Corresponding Author: Department of Health Systems Management, Kenya Methodist University, Nairobi Kenya: richardmagondu@yahoo.com

Received: 03/06/2019 – Accepted 20/07/2019

Abstract

Introduction: A well-functioning health system works in harmony among the building blocks: trained and motivated health workers, functional infrastructure, consistent supply of essential medicines and technologies, health information management, and sufficient funding. Africa is uniquely affected by maternal health challenges with a maternal mortality estimated at 686/100,000 live births. Kenya has high maternal mortality estimated at 360/100,000 live births. These deaths are avoidable with proper medical intervention. This study sought to assess quality of service delivery in maternity units of health facilities currently implementing expanded free maternal care programme in Kajiado County. It was guided by one general and four specific objectives: To establish how essential drugs, medical equipment, health workers and basic amenities influence quality of service delivery in maternity units of health facilities currently implementing expanded free maternal care programme in Kajiado County. **Methods:** The study adopted descriptive cross sectional design of survey, with midwives, clinical officers and medical officers being the target population. Since the target population was small a census was carried out. 44 self-administered questionnaires were used; the questionnaires were pre-tested for reliability using Cronbach's-Alpha. Descriptive and inferential statistics were used to provide population details and make inferences based on data collected. **Results:** 68% of the health facilities surveyed were dispensaries (Level 2), 23% were Health centres (Level 3), 7% were Sub County referral hospitals (Level 4) while 2% were County referral hospital (level 5). Oxytocin injectable was partly out of stock in 64% of health facilities while Magnesium sulphate was always available in only 5% 58% of assessed health facilities had a sterile delivery set. Only 18% of respondents agreed that their facilities had adequate skill mix of health workers. None of the independent variable had coefficient > 0.05 hence no problem of multi-collinearity, the probability value, p was <0.05 indicating the model used was entirely significant. **Conclusion:** Results show independent variables individually and combined significantly influenced provision of quality of health care in maternity units in Kajiado County Kenya

Key words: *Expanded free maternal care programme, Linda Mama, Quality healthcare, Maternity unit, Patient-centered care, Kajiado, Kenya*

Introduction

A health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health (WHO, 2007). Service delivery is a key pillar of any health system, it thrives on having trained and motivated health workers operating in a functioning infrastructure and a consistent supply of essential medicines and technologies supported by sufficient funding, strong health plans and evidence-based policies (WHO, 2016).

The World Health Organization (Placeholder5) defines good health services as those which deliver effective, safe, good quality personal and non-personal care to the people that need them when they need them with least waste of resources be they preventive, curative or rehabilitative and regardless if delivered at home, community or health facility. Quality is an indispensable measure of a well performing health system. (Mattke, Kelley, Scherer, Hurst, & Lapet, 2006). Maternal mortality is a most tragic outcome of pregnancy. The death of a woman before, during and within 42 days after delivery is an incomparable loss and is almost entirely preventable given proper medical surveillance and intervention, and as such maternal mortality is often viewed as a sentinel indicator of the quality of a health care delivery system. Many nations have succeeded in reducing maternal deaths, Japan achieved dramatic fall in maternal mortality between 1960 and 2000.

In 1950, Japan had a maternal mortality ratio of around 180 deaths for every 100,000 live births, By 2004/5, this level had been reduced dramatically to just 9.3 maternal deaths for every 100,000 live births (Statistics and Information Department, 2018). There was a dramatic fall in maternal mortality especially over the ten-year period from 1960 to 1970, with the maternal mortality rate (MMR) declining from around 130 to 50 – almost a two-thirds reduction. The success of Japan in tackling maternal mortality is due to a host of factors, but also provides evidence of the three main interventions which are needed everywhere in the world: Access to family planning to prevent unwanted and mistimed pregnancies, universal access to skilled care at delivery and timely access to Emergency Obstetric Care for all women with complications (Nakamura, 2010).

Kenya continues to have high maternal mortality with an estimate of 360 deaths per 100,000 live births (KDHS, 2014). Many factors have contributed to high maternal mortality including poor access to quality antenatal, perinatal, postnatal and family planning services. Even in instances where these services were accessible, their quality remain poor and an impediment to their utilization (Gwatkin, Rutstein, Johnson, Suliman, Wagstaff, & Amouzou, 2007). On June 1st 2013, the Government of Kenya launched a free maternity health care programme in all public facilities with an objective to increase access to skilled delivery services and hence reduction of maternal mortality as was envisioned in Millennium Development Goal (MDG) number five (MOH, 2013). Though well intentioned, critical pillars of the health system were not strengthened to cope with the increased demand put on them. Reports surfaced of overcrowded maternity wards with women forced to leave the hospital before their due discharge time to make room for others or even deliver on the floor due to lack of beds and nurses have also reported being overburdened (Bourbonnais, 2013). Increasing the work burden on health staff without an

equivalent increase on staffing numbers and other critical aspects of service delivery threatened to derail the free maternal services gains.

In October, 2016, the government of Kenya re-launched the free maternity services program, re-envisioned and under a new name. *Linda Mama*, the programme is being administered by Kenya's National Health Insurance Fund (NHIF) and offers free maternity services at all public health facilities and an additional 2,000 private-sector and 700 faith-based facilities. It also provides expanded services, covering outpatient and inpatient services for both mothers and babies, including antenatal, delivery and neonatal and postnatal care and one year of pediatric services (MOH. 2016). The programme is estimated to reach 700,000 women each year. This study sought to assess quality of service delivery in maternity units of two health facilities in Kajiado County currently implementing expanded free maternal care programme.

Methods

The study adopted descriptive cross sectional design. The study was conducted in five sub counties of Kajiado County namely, Kajiado Central, Kajiado North, Loitokitok, Isinya and Mashuru. The study used census method to sample the health facilities as well as the study respondents. All the 44 health facilities implementing free maternity services were sampled and included: one County referral hospital, three Sub-County hospitals, 10 health centres and 30 dispensaries. The study sample was 44 respondents comprising 32 midwives, 8 medical officers, and 4 clinical officers. The respondents had experience in delivery and/or management of the free maternal services package. To collect data a self - administered semi-structured questionnaire with both closed (Likert scale psychometric constructs where 5=strongly agreed, 4= agreed, 3=neutral, 2= disagreed, and 1=strongly disagreed) and open ended questions, and an observational check-list were used. The questionnaires were pre-tested for reliability using Cronbach's-Alpha. The questionnaires were filled by the respondents in the labour ward at the time of visit. An observation checklist was utilized by the researcher to confirm the information provided. Data was collected between July and October 2018. The researcher got ethical approvals from Kenya Methodist University (KeMU) Scientific and Ethical Review Committee and the National Commission of Science and Technology and Innovation. All participants were clearly explained about the research study including its objectives and each respondent filled a consent form before administering to the questionnaire. Quantitative data was analyzed using Statistical Package for Social Sciences version 25. All data was collected using likert scale, where 5=strongly agreed, 4= agreed, 3=neutral, 2= disagreed, and 1=strongly disagreed. For analysis and presentation, the researchers reduced the scale from 5 to 2 by combining responses strongly agreed and agreed to form agreed responses and neutral, disagreed and strongly agreed were combined to form disagreed responses. Descriptive summaries are presented in frequencies, percentages, means and standard deviations. Inferential statistics were used to present population details and make inferences based on data collected.

Results

The study achieved a 100% response rate (n=44). The type of health facilities included in this study were dispensaries 30(68%), Health centres 10(23%), Sub-County Referral Hospitals 3(7%), and County Referral Hospital 1(2%).

Availability of essential drugs for delivery of quality healthcare

Results on availability of essential drugs for delivery of quality healthcare are shown in **Table 1**.

Table 1: Availability of essential drugs for delivery of quality healthcare (N=44)

Statements	Agree		Disagree		Mean	Std-dev'
	N	%	N	%		
Delivery room has an essential drugs list hang on the wall	7	15.9	37	84.0	2.07	0.45
Oxytocin injectable is always available for use	44	99.9	0	0.0	4.39	0.49
Magnesium sulphate injectable is always available	36	81.7	8	18.2	4.00	0.75
Misoprostol drug is always available	5	11.4	39	88.5	2.02	0.59
Intravenous fluids are always available	41	93.1	3	6.8	4.07	0.33
Dexamethasone injection is always available	6	13.6	38	86.3	2.39	1.21
Glucose 5-10-50%	12	27.2	32	72.6	3.02	1.25
Sodium chloride 0.9%	42	95.3	2	4.5	4.25	0.44
Water for injection is always available	41	93.1	3	6.8	3.91	0.6
Lignocaine injection is always available	43	97.6	1	2.3	4.23	0.57
Epinephrine/adrenaline is always available	11	25.0	33	74.9	3.00	1.16
There are never any expired drugs in the pharmacy or in the drug cupboard	9	20.4	35	79.5	2.61	0.84
Vaccines are always kept at recommended cold chain temperatures	17	38.6	27	61.3	3.39	1.04
Patients always have access to essential drugs	36	81.7	8	18.2	3.70	0.63
There is always sufficient quantities of essential drugs in the labour room	38	86.3	6	13.6	3.50	0.63

More than half of the respondents 28(64%) disagreed that oxytocin injectable was always available for use in labour room, while Magnesiem sulphate was only always available in 2(5%) of assesed healthcare facilities. Nearly respondents 39(89%) diagreed that IV fluids were always available in assesed facilities.

Availability of Medical Equipment for Delivery of Quality Healthcare

Availability of medical equipment is an important indicator in assuring delivery of quality healthcare. The study results are shown in **Table 2.**

Table 2: Availability of Medical Equipment for Delivery of quality healthcare

The delivery room	Agree		Disagree		Mean	SD
	N	%	N	%		
is always properly lit	23	52.3	21	47.7	2.57	1.02
is always adequately heated to keep new-born warm	27	61.4	17	38.6	4.16	0.37
always has adequate oxygen supply for use when needed	17	38.6	27	61.4	4.02	0.4
always has a functioning wall clock	11	25.0	33	75.0	2.7	0.93
always use sterile delivery pack to conduct deliveries	36	83.7	7	16.3	3.91	0.42
always has a functional thermometer	38	88.4	5	11.6	4.34	0.99
always has sterile gloves	39	90.7	4	9.3	2.86	0.96
always has a functional foetal scope	44	100.0	0	0.0	4.02	0.59
always has a functional BP Machine available	43	97.7	1	2.3	4.34	0.61
always has adequate IV catheters of right size	38	88.4	5	11.6	4.25	0.65
always has syringes	41	95.3	2	4.7	3.34	1.08
always has needles of right size	39	88.6	5	11.4	2.82	1.21
always has sterile suturing set (scissors, needles holder)	36	81.8	8	18.2	3.64	1.22
always has weigh machine for baby	43	97.7	1	2.3	3.93	0.82
always has resuscitation bags	33	75.0	11	25.0	3.7	0.88

Nearly all respondents 38(88.4%) agreed that their facilities always have a functional thermometer, less than half 17(38.6%) agreed that their health facility has a functional oxygen machine and 33(75%) had access to resuscitation equipments. Majority of respondents 36(83.7%) agreed that the delivery rooms always use sterile delivery pack to conduct deliveries. Of concern was the oxygen supply which was always unavailable in 61.4% of health facilities. Only half of delivery rooms were properly lit, most of those without proper lighting were dispensaries in remote settings were most affected. Midwives explained their frustrations in performing simple but crucial procedures like episiotomy and tear repairs. Often they had to refer patients to higher level institutions for

procedures they could perform. This not only financially burdened the client but also created unnecessary load to upper level facilities as reported by one respondent:

"... the lack resuscitation bags for newborns is of great concern for us, we want to resuscitate a newborn but the ambubag are adult size and won't fit in its mouth, this can easily crash her chest'.

Another respondent had this to say:
"*… in recent times, the quality of medical equipment that we happen to receive is of poor quality, they quickly fail to function and you have to replace them…now don't even talk of the lengthy and bureaucratic process involved here that can take 6 or more months, ultimately we just let them stay here and waste, just go outside and see the ambulance that is rotting away in the sun yet we have no means for emergency referral…"*

Health Workers' Factors and Delivery of Quality Healthcare

The study investigated health worker factors that affect delivery of quality healthcare services in the labour wards. Results are shown in **Table 3**.

Table 3: Health Workers' Factors and Delivery of Quality Healthcare

Statement	Agreed		Disagree		Mean	SD
	N	%	N	%		
Staff are periodically appraise	11	25.0	33	75.0	2.61	0.87
HF has mechanism for recognizing good performance.	38	88.4	5	11.6	3.86	0.51
Each health worker has a job description	14	31.8	30	68.2	2.61	0.97
A qualified staff member is designated to carry out triage	41	93.2	3	6.8	2.84	1.03
A health professional is always available to manage patients with an emergency condition	41	93.2	3	6.8	4.02	0.51
Staff in charge of labour ward has adequately management training	11	25.0	33	75.0	4.25	0.58
Health workers in delivery room routinely undertake continuing professional development	36	81.8	8	18.2	4.16	0.61
Health facility has enough health workers in labour ward to conduct deliveries	12	27.3	32	72.7	3.25	0.97
Health facility has adequate skill mix of health workers	27	61.4	17	38.6	2.73	1.07
Health workers have adequate experience to manage deliveries	36	81.8	8	18.2	3.55	1.15
Health workers have adequate capacity to identification, manage or refer complicated delivery	36	81.8	8	18.2	3.84	0.75

Majority of respondents 36(81.8%) agreed that most health workers have adequate experience to manage deliveries and that health workers have adequate capacity to identify, manage or refer complicated deliveries. However, most respondents 30(68.2%) and 32(72.7%) disagreed that each health worker has a job description and that health facilities have enough health workers in labour wards respectively.

Availability of Basic Amenities for Delivery of Quality Healthcare

The study assessed availability of basic amenities in Kajiado County (**See Table 4**). A majority of the respondents 41(93.2%) agreed that their health facilities always have regular electricity supply from the main grid, 35(79.5%) said they had adequate, clean running water, and 34(77.3%) reported that the health facility was always open for 24 hours. However, majority 39(89.6%) disagreed that there was a functional theatre room operational 24 hours, and that always has a functioning ambulance/taxi.

Table 4: Availability of Basic Amenities for Delivery of Quality Healthcare

The delivery room…	Agree	%	Disagree	%	Mean	SD
always has regular electricity supply	41	93.2	3	6.8	3.25	0.9
always has back-up power supply	9	20.9	34	79.1	3.09	1.1
always has adequate running water available	35	79.5	9	20.5	3.66	1.1
is always open 24 hrs	34	77.3	10	22.7	3.93	0.6
has a functional theatre room operational 24 hours	5	11.4	39	88.6	2.77	1.2
always has updated clinical protocols and guidelines	31	70.5	13	29.5	4.16	0.4
always has a functioning ambulance/taxi	5	11.4	39	88.6	3.34	1.2
always has adequate reliable back-up water source	13	29.5	31	70.5	4.11	0.5

Delivery of Quality Healthcare

During the delivery, the research observed that more than half of the staff 26(61%) did not wash their hands with disinfectant prior to conducting deliveries, biohazards including placenta were disposed appropriately in 39(86%) on cases, delivery procedures in 2nd and 3rd stage were performed using sterile implements in 40(91%) of cases observed, partograph was accurately documented in 35(80%) of the cases. Complete new-born assessment in the delivery room after delivery was done in only 14(32%) of facilities, routine prophylaxis to all new-born babies using tetracycline eye ointment happened in 32(72%) of cases.

Inferential Statistical Analysis

The objective of this study was to examine factors influencing the delivery of quality healthcare in maternity units in Kajiado County. A bivariate analysis was conducted to test the relationship of the independent variables (availability of essential drugs (X_1), availability of medical equipment (X_2), health worker factors (X_3), and availability of basic amenities (X_4)) and dependent variable delivery of quality healthcare (Y). The

results for each variable in this study are given by the Pearson's Rho (r) and its corresponding *p-value* (**Table 5**).

The results of the Pearson's correlation analysis show varied degrees of interrelationships. The results revealed that health worker factors and availability of basic amenities influence delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. Health worker factors (X_3) was statistically significantly correlated with delivery of quality of healthcare services (r= .655**, $P < .001$). Therefore improvement in health worker factors would positively influence delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. Hence, the null hypothesis that there is no influence of human resource factors on delivery of quality healthcare services in maternity units was rejected.

Table 5: Bivariate Linear Correlation

		Quality healthcare
Quality healthcare	Pearson Correlation	1
	Sig. (2-tailed)	
	N	44
Essential drugs	Pearson Correlation	.302
	Sig. (2-tailed)	.047
	N	44
Medical equipment	Pearson Correlation	.338
	Sig. (2-tailed)	.006
	N	44
Health workers	Pearson Correlation	.655**
	Sig. (2-tailed)	.000
	N	44
Basic amenities	Pearson Correlation	.350**
	Sig. (2-tailed)	.020
	N	44

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Availability of basic amenities (X_4) was statistically significantly correlated with delivery of quality healthcare services (r= .350**, $P < .020$).Hence, improvement in availability of basic amenities would positively influence delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. Similarly the null hypothesis that there is no influence of availability of basic amenities on delivery of quality healthcare services in maternity units was rejected. Results indicated that there was statistically significant relationship between the health worker

factors as well as availability of basic amenities and delivery of quality healthcare services in maternity units.

However, there was no significant statistical evidence on the relationship between availability of essential drugs (X_1), as well as availability of medical equipment (X_2) and delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. Hence, the null hypothesis that there is no influence of availability of essential drugs on delivery of quality healthcare services in maternity units in Kajiado County was accepted. Likewise, the null hypothesis that there is no influence of availability of medical equipment on delivery of quality healthcare services in maternity units in Kajiado County was accepted.

A multiple regression analysis was done on the four factors (availability of essential drugs (X_1), availability of medical equipment (X_2), health worker factors (X_3), and availability of basic amenities (X_4)) to test their combined influence on delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. (**See Table 6**). The regression output containing all the four variables in this study was found to be valid ($F_{(4,39)} = 17.560$, $P < .001$) meaning the four factors in this study are good predictors explaining the variations in delivery of quality healthcare services in maternity units under the Expanded Free Maternal Care Programme.

Table 6: Delivery of Quality Healthcare Services in Maternity Units: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	Sig.	
		B	Std. Error	Betat		
1	(Constant)	.350	.915		.383	.704
	Essential drugs	.457	.197	.228	2.318	.026
	Medical equipment	.134	.109	.118	1.224	.228
	Health workers	.427	.066	.660	6.460	.000
	Basic amenities	.122	.059	.215	2.067	.045

a. Dependent Variable: Quality healthcare

The multiple regressions results indicate that availability of essential drugs (X_1: $\beta_1 = .228$, $P < .026$), health worker factors (X_3: $\beta_3 = .660$, $P < .001$), and availability of basic amenities (X_4: $\beta_4 = .215$, $P < .045$) influenced delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. One factor, availability of medical equipment (X_2: $\beta_2 = .118$, $P < .228$) was not statistically significant. The value of the constant ($\beta_0 = .350$, $P < .704$) indicates that delivery of quality healthcare services may not always exist without at least some of these minimum four factors (availability of essential drugs, medical equipment, health workers factors and availability of basic amenities) under investigation in this study. The coefficients of X_1, X_3, and X_4 indicate that a unit increase in essential drugs, human resource factors and basic amenities index leads to an increase in delivery of quality

healthcare services index by .228, .660, and .215 respectively which is statistically significant ($P < .026$, $P < .001$, and $P < .045$) respectively.

Discussion

On availability of essential drugs, the study findings are comparable to similar studies in rural districts of Tanzania by (Dickson Ally Mkoka et al, 2014), which noted that unreliability of obtaining essential drugs and medical supplies compromised the timely provision of quality care. The study also comparable to those of (Reproductive Health Supplies Coalition, 2014) which stated that oxytocin, misoprostol, and magnesium sulphate are essential, low-cost and effective medicines that can save women's lives but are largely un available in most public health facilities, the study recommended supportive policies and appropriately funding to ensure access to these medicines in health facilities and communities around the world. They study present comparable tallies to those of the World Medicines Situation Report 2014 of the World Health Organization (WHO) which pointed out that approximately 67% of the population lives without an access to essential medicines

On availability of equipment for delivery of quality healthcare services, the study finding concurred with a research conducted by the Navrongo Health Research Centre (NHRC, 2016) on the government's free maternal health care policy in the Upper East Region, Ghana which brought the role of equipment as crucial in the implementation of the policy (Cook, 1998), the study noted that while most equipments were available, their functionality was largely compromised and often were a risk to patient and staff wellbeing, it went on to state that patient safety could only be assured when systems are skillfully designed to ensure availability of skilled workers and optimally functioning equipments.

Broadly, the study has shown that public hospitals Kajiado County have enough medical equipment, however feasible arrangements for their maintenance should be developed, still there is need to commit locally derived funds to more medical equipment to cope with the growing number of women seeking deliveries. The high salinity of water in Kajiado County predispose most equipments to corrosion and subsequently wear and tear, most equipment's were broken down leading to malfunction hence the need to establish a stronger or efficient biomedical engineering to ensure timely maintenance and technical advice while procuring hospital equipment.

This study has established that staff shortage was a major implementation challenge, feedback from midwives and facility in-charges collaborated with observation from the researcher. Only 18% of respondents agreed that their facilities had adequate skill mix of the health workers. The study agrees with (Welp A, 2015) which established that inadequate staff numbers often lead to fatigue which subsequently affected decision making process, (Haas, 2000), established that patients of physicians who have higher professional satisfaction were themselves more satisfied with their care. Satisfied and committed employees deliver patient centred care which ultimately results in better health outcomes and higher patient satisfaction (Mosadeghrad, 2014).

Majority of respondents stated that there were processes in place for recognition of good performance among health facilities and this was a big motivation factor. This finding is similar to findings by (Stewart M1, 2000) who established that patient-centered practice could only be delivered in an environment with adequate numbers and skill mix of health workers; they should be motivated and well equipped. Integrating patient-centered care significantly improved utilisation of health services among rural communities, this also stimulated healthcare that was both sustainable, equitable and of high quality (Saha S1, 2008).

The findings on availability of basic amenities are in agreement with recent studies by (Bouzid M, et al 2018) who noted that patient satisfaction with basic amenities in a health facility is a good indicator of quality of care provided and impacts on care seeking behavior, inadequate water and sanitation services in healthcare facilities was associated with increased patient dissatisfaction and was even a barrier to service use in some settings, most notably maternity services. The findings are also in agreement with related studies by (Heather Adair-Rohani, et al 2017). The study established that despite access to electricity being critical to health care delivery and to the overarching goal of universal health coverage, only 34% of hospitals in sub-Saharan Africa, on average, have reliable electricity access.

Conclusion

This study found a positive and scientifically significant influence of availability of essential drugs, health worker factors and availability of basic amenities on delivery of quality maternal health services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme.

Medical equipment were found to significantly influence how safe and efficient healthcare delivery system is. Water salinity and resultant corrosion affected the shelf-life, performance and effectiveness of the few medical equipment available. Level 2 facilities dispensaries in remote settings were most affected.

The study established it was practically impossible to carryout non lifesaving but important actions in maternity units owing to under staffing. Access to clean water and energy source are critical enablers of access to health technologies and thus key elements of effective attainment of universal health coverage.

This study established that lack of these key amenities disproportionally affected rural and low level health facilities. Clean running water was not available in 40% of health facilities. Water salinity had a negative effect on drainage system, corroding most toilets and bathrooms and hence posing a health risk to women and their newborn. Bureaucratic impediments and rigid top down management approach affected the usefulness of most amenities; basic repairs of amenities took an average 6 months leading to even more breakdown and wear and tear.

What is known about this topic?

The Government of Kenya rolled out free maternity services program on 1st June, 2013 through a presidential declaration to encourage women to give birth at health facilities under skilled personnel. The declaration led to sharp increase in facility based deliveries. In October, 2016, the government of Kenya re-launched the free maternity services program, re-envisioned and under a new name. *Linda Mama*, the programme is being administered by Kenya's National Health Insurance Fund.

What the study adds

- It reviews the quality of implementation of the free maternity services program.
- It identifies critical gaps of the health system pillars that were not steadied to cope with the increased demand.
- It offers recommendations on areas of improvement to facilitate attainment of desired goals.

Competing Interests

The authors declare no competing interests.

Authors' Contributions

Richard Wachira Magondu made critical contribution of conception of the study, developing methodology, data analysis and manuscript writing. Dr. Wanja Mwaura-Tenambergen, first supervisor provided guidance in drafting initial concept and study design, she actively supervised the whole process ensuring quality data gathering, entry and analysis and further ensuring readability through technical reviews. Dr. Fredrick Ndede assisted in critical review of the technical contents that ensured sound blend of a professional study in a clinical environment.

REFERENCES

Atul Gupta, I. S. (2014). Health care infrastructure amenities – an empirical examination of Indian perspective. *Emerald Insight*.

Boudreau, R., McNally, C., Rensing, E., & Campbell, M. (2004). Improving the timeliness of written patient notification of mammography results by mammography centers. *The Breast Journal, 10*(1), 10-19.

Bourbonnais, N. (2013). *Implementing Free Maternal Care in Kenya;*. KNCHR. Nairobi: KNCHR.

County Goverment of Kajiado. (2013-2017). *Integrated Development Plan.* Nairobi: County Government of Kajiado.

Dickson Ally Mkoka, e. a. (2014). Availability of drugs and medical supplies for emergency obstetric care: experience of health facility managers in a rural District of Tanzania. *BMC Pregnancy and Childbirth*.

Donabedian, A. (2005). Evaluating the quality of medical care. *The Milbank Quarterly, 83*(4), 691-729.

Gwatkin, D. R., Rutstein, S., Johnson, K., Suliman, E., Wagstaff, A., & Amouzou, A. (2007). *Socioeconomic differences in health, nutrition, and population within developing countries; An Overview.* Washington DC: World Bank.

KDHS, M. (2013). KDHS. *Kenya Demographic Health survey*.

KDHS. (2014). *Kenya Demographic and Health Survey.* Nairobi: GOK printing press.

Maternity Worldwide. (2015). *saving lives in childbirth*. Retrieved March 11, 2019, from Maternity Worldwide: https://www.maternityworldwide.org/

Mattke, S., Kelley, E., Scherer, P., Hurst, J., & Lapet, M. L. (2006, March 09). Health Care Quality Indicators Project initial indicators report. *OECD Health Working Papers No. 22*, pp. 1-151.

MOH Kenya. (January 2015). *Implemetation status of FMS.* Nairobi: Government printers.

MOH_Kenya. (2013). *Kenya Demographic Health Survey.* Nairobi: Government printers.

MOH, MOPH. (2011). *Kenya Service Provision Assesment.* Nairobi.

MOH. (2012). *Kenya Health Policy 2012 - 2030.* Nairobi: Government press.

MOH. (2015). *Kajiado County Health at a glance.* Nairobi.

Nakamura, Y. (2010). Maternal and Child Health Handbook in Japan. *JMAJ, 53*(4), 259-265.

Reproductive Health Supplies Coalition. (2014). Retrieved March 11, 2019, from Essential Medicines for Maternal Health; Ensuring equitable access for all: http://www.familycareintl.org/UserFiles/File/Essential_Medicines_Maternal_Health.pdf

Republic of Kenya, . (2010). *Constitution of Kenya.* Nairobi: National Council for Law Reporting.

Roberts, M., Hsiao, W., Berman, P., & Reich, M. (2003). *Getting Health Reform Right: A Guide to Improving Performance and Equity.* New York:: Oxford University Press.

Saha S, M. C. (2008). Patient centeredness, cultural competence and healthcare quality. *J Natl Medical Association*.

Sambo, L. G., & Kirigia, J. M. (2014). Investing in health systems for universal health coverage in Africa. *BMC International Health and Human Rights, 14*(1), 28.

Statistics and Information Department. (2018, 02 26). *Vital Statistics Division, Ministry of Health, Labour and Welfare.* Retrieved from Vital statistics division : http://www.mhlw.go.jp/english/database/db-hw/index.html

Stewart M1, B. J. (2000). The impact of patient-centered care on outcomes. *PubMed*.

Velisha Ann Perumal-Pillay, F. S. (2017). Quantitative evaluation of essential medicines lists: the South African case study. *BMC Health Services Research*.

WHO, The selection of essential medicines. (2018, 11 18). Retrieved from WHO Policy Perspectives on Medicines, Geneva: WHO, 2002, No. 4: http://whqlibdoc.who.int/hq/2002/WHO_EDM_2002.2.pdf

WHO. (2007). Everybody's business. Strengthening Health systems to improve Health outcomes.

WHO. (2015). *Service Delivery & Safety*. Retrieved March 11, 2019, from https://www.who.int/servicedeliverysafety/en/

WHO. (2015). *Trends in maternal mortality:1990 to 2015.* Geneva: WHO Library Cataloguing.

WHO. (2016, 07 25). *Health System*. Retrieved from Health systems service delivery: http://www.who.int/healthsystems/topics/delivery/en/

WHO. (2016, May 14). *Global Health Observatory (GHO) data*. Retrieved from About the Health Equity Monitor: http://www.who.int/gho/health_equity/about/en/

WHO. (2016). *Health System Service Delivery*. Retrieved 02 03, 2016, from Health Systems: http://www.who.int/healthsystems/topics/delivery/en/

WHO. (2016). *World Health Report; Working together for health.* Geneva, Switzerland: WHO.

WHO. (2017). *Health financing policy strategy*. Retrieved from Health financing strategies for universal coverage: http://www.who.int/health_financing/strategy/en/

WHO. (2017). *The WHO Health Systems Framework*. Retrieved from http://www.wpro.who.int/health_services/health_systems_framework/en/: http://www.wpro.who.int/health_services/health_systems_framework/en/

Wilson, R. (2012). Patient safety in developing Countries: retrospective estimation of scale and nature of harm to patients in hospital.

World Health Organisation. (2015). *Service Delivery and Safety.* Geneva: World Health Organisation publication.

World Health Organisation. (2016). *Standards for improving quality of maternal and newborn care in health facilities.* Geneva: WHO Library.

Zhigang Guo, X. G. (2017). The impacts of implementation of National Essential Medicines Policies on primary healthcare institutions. *BMC Health services research*.