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Original Research Article

The effect of Kenya's free maternal health care policy on the utilization of skilled delivery services and maternal and neonatal mortality rates in public health facilities

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ABSTRACT

Background: Kenya abolished delivery fees in all public health facilities through a presidential directive effective on June 1, 2013 with an aim of promoting skilled delivery service utilization and reducing pregnancy-related mortality in the country. This paper aims to provide a brief overview of the free maternal health care policy's effect on skilled delivery service utilization and maternal and neonatal mortality rates in Kenyan public health facilities.
Methods: Interrupted time series analysis of skilled delivery services utilization, maternal and neonatal mortality rates two years before and after the policy intervention was carried out in 77 Kenyan public health facilities.
Results: A statistically significant increase in the number of facility-based deliveries was identified with no significant changes in the rates of maternal mortality and neonatal mortality.
Conclusions: The findings suggest that cost is a deterrent to skilled delivery service utilization in Kenya and thus free delivery services are an important strategy in the effort to promote the utilization of skilled delivery services; however, there is a need to simultaneously address other factors that contribute to pregnancy-related deaths when addressing maternal and neonatal mortality rates.

Keywords: Free maternal health care policy, Maternal mortality rate, Neonatal mortality rate, Skilled delivery services utilization

INTRODUCTION

The reduction and elimination of pregnancy-related mortality remain a challenge in most developing countries.[1] The maternal and neonatal mortality rates in Kenya have been found to be 362/100,000 live births and 22/1,000 live births, respectively. Given that only 61.2% of deliveries in the country are conducted in health facilities, pregnancy-related deaths have been attributed to unskilled delivery.[2] Globally, skilled delivery services have been recommended as a solution to preventable maternal and neonatal deaths.[3] For this reason, many African countries have either reduced or eliminated delivery fees to promote skilled delivery service utilization.[4]

Kenya joined other African countries in the abolishment of delivery fees in all public health facilities through a presidential directive signed into effect on June 1, 2013.[5] Through this policy, public health facilities are reimbursed for costs incurred while providing delivery services through a capitation fund provided by the Ministry of Health. This policy provides equal reimbursement for both spontaneous vaginal deliveries

and caesarian sections. The amounts reimbursed to health facilities are based on their capacity to manage pregnancy and delivery complications. As such, 2,500 Kenya shillings (25 US dollars) are reimbursed for every delivery conducted in level 2 and 3 health facilities (dispensaries and health centers); 5,000 Kenya shillings (50 US dollars) are reimbursed for every delivery carried out in level 4 and 5 health facilities (district and sub district hospitals); and 17,500 Kenya shillings (175 US dollars) are reimbursed for every delivery performed in provincial hospitals and national referral health facilities.[6]

While eliminating delivery fees is a commendable intervention, pregnancy-related mortality due the following "three delays" remains a concern: delays in deciding to seek skilled delivery services, delays in arriving at health facilities and delays in receiving adequate treatment and referral.[7] Cost is not the only factor hindering the utilization of skilled delivery services. In Kenya, maternal and neonatal deaths have been attributed to other factors, including lack of transport, long distances to health centers, poorly equipped health facilities, and traditional and cultural practices.[8&9] Therefore, while the elimination of delivery fees in Kenyan public health facilities partially addresses the economic barriers to maternal health care service utilization, other economic barriers, health system gaps, and political, social, environmental and religious factors that may influence the utilization and outcomes of maternal health care services in the country have not been addressed.[10-15]

In addition, initial assessments of the implementation of this policy have identified various gaps, such as drug and supply shortages, insufficient funding, skilled health care worker shortages, stakeholder non-involvement in maternal health, delayed reimbursement of costs incurred while providing free maternal health care services, heavy workloads, health worker demotivation, healthcare worker attitudes, low privacy levels in public health facilities and unavailability of ambulances for emergencies occurring at the community level.[16,17] In light of these contextual gaps, this study aimed to investigate the effects of the free maternal health care policy in Kenya on skilled delivery service utilization and maternal and neonatal mortality rates in public health facilities.

METHODS

A time series analysis was performed in this study, with the period of interest being twenty-four months before policy implementation (June 1, 2011, to May 31, 2013) and twenty-four months after policy implementation (June 1, 2013, to May 31, 2015).

The study was conducted in 77 public health facilities selected from 14 counties in the Republic of Kenya. At the time of data collection, Kenya's public health care facilities were organized in a hierarchical pyramidal structure comprising six levels, namely, level 1 health facilities (community health centers), level 2 health facilities (dispensaries), level 3 health facilities (health centers), level 4 health facilities (sub district hospitals and district hospitals), level 5 health facilities (provincial hospitals) and level 6 health facilities, which were national referral hospitals.[18] This hierarchical pyramidal structure is expected to change from six to four tiers once relevant legislation is passed by the national parliament.[19-22]

Deceased mothers and deceased neonates from the selected health facilities were included in the assessment of maternal and neonatal mortality rates. Mothers who had delivered in the selected health facilities during the four years under consideration were included in the assessment of health service utilization.

Fourteen of the forty-seven counties in the Republic of Kenya were selected for inclusion in the study after single-stage cluster sampling and subsequent simple random sampling procedures were applied.[23] The 47 counties were classified into high risk, medium risk and low risk maternal mortality categories based on their perennial maternal mortality rates. Of these counties, 5 with a high risk, 5 with a medium risk and 4 with a low of risk maternal mortality were included in the study; these studies were selected via simple random sampling. Of the 97 health facilities eligible for inclusion in the study, 77 were selected.[24] Thereafter, proportionate probability sampling was used to determine the number of health facilities in each of the 14 counties to be included in the study. Simple random sampling was then used to identify one maternity nursing home, 58 level 4 health facilities, 17 level 5 health facilities and one level 6 public health facility for inclusion in the study.

The instrument used for data collection in this study was a tabulated questionnaire designed to capture monthly neonatal mortality rates, maternal mortality rates and skilled delivery service utilization data for each of the 77 health facilities. SPSS (IBM version 23) was used for the data analysis, and the results were stratified by geographical location and health facility level. Interrupted time series analyses of quarterly (3-month) maternal mortality rates, neonatal mortality rates and skilled delivery service numbers were performed using autoregressive integrated moving average (ARIMA) models, and the level of significance was set at p=0.05.

Ethical approval was obtained from Kenyatta National Hospital and University of Nairobi Ethical Committee, while administrative approval was obtained from the Ministry of Health headquarters in Kenya, county health officials and health facility administrators.

RESULTS

Skilled delivery service utilization

A statistically significant increase in the number of deliveries performed in the health facilities was

Perfected

identified; this number increased from 234,601 before policy implementation to 303,705 after the policy implementation, representing a 29.5% increase (p<0.05), as illustrated in Table 1.

Table 1: Total deliveries.

Total skilled deliveries				
Variable	**Variable description**	**Total deliveries pre- policy**	**Total deliveries post-policy**	**P value**
Location	Rural-Based facilities	88,153.00	112,321.00	0.00
	Urban-Based facilities	146,448.00	191,384.00	0.01
Facility level	Maternity hospital	39,729.00	43,411.00	0.05
	Level 4 facilities	113,950.00	159,956.00	0.00
	Level 5 facilities	60,303.00	74,646.00	0.06
	Level 6 facility	20,619.00	25,692.00	0.10
All the 77 facilities		234,601.00	303,705.00	0.00

The results of the analysis of quarterly deliveries in the 77 health facilities indicated the presence of a decreasing trend in deliveries (slope= -13.131, p>0.05) during the 24 months preceding implementation of the policy. This finding implied that during the 24 months before the intervention, no significant change was identified in the number of facility-based deliveries. However, a significant increase in the quarterly number of facility-based deliveries (slope=124.90, p=0.01) in the 77 health facilities was identified after policy implementation (Table 2).

Table 2: Quarterly patterns in skilled delivery service utilization.

	Slope 24 months pre-policy	Slope 24 months pre-policy	Slope 12 months pre-policy	Slope 12 months post-policy
All the 77 facilities	-13.13 (p=0.63)	124.90 (p=0.01)	-13.13 (p=0.63)	-26.65 (p=0.18)
Urban-based facilities	-17.37 (p=0.46)	77.10 (p=0.03)	-17.37 (p=0.46)	111.77 (p=0.00)
Rural-based facilities	4.65 (p=0.44)	47.34 (p=0.00)	4.65 (p=0.44)	59.74 (p=0.01)
Maternity hospital	-3.12 (p=0.87)	-23.54 (p=0.45)	-3.12 (p=0.85)	51.99 (p=0.0)
Level 4 facilities	18.79 (p=0.15)	68.00 (p=0.01)	18.79 (p=0.15)	86.98 (p=0.0)
Level 5 facilities	-19.59 (0.13)	53.63 (p=0.01)	19.59 (p=0.13)	34.04 (p=0.01)
Level 6 facility	-0.75 (p=0.87)	17.01 (p=0.02)	-0.76 (p=0.09)	16.26 (p=0.01)
	Slope 6 months pre-policy	**Slope 6 months post- policy**	**Slope 3 months pre-policy**	**Slope 3 months post-policy**
All the 77 facilities	-124.90 (p=0.02)	111.77 (p=0.00)	-13.13 (p=0.063)	111.77 (p=0.00)
Urban-based facilities	-77.10 (p=0.03)	59.74 (p=0.014)	-17.37 (p=0.46)	59.74 (p=0.01)
Rural-based facilities	-47.34 (p=0.00)	51.99 (p=0.00)	4.65 (p=0.44)	51.99 (p=0.00)
Maternity hospital	23.54 (0.45)	-26.66 (p=0.02)	-3.12 (p=0.87)	-26.66 (p=0.02)
Level 4 facilities	-68.00 (p=0.01)	86.789 (p=0.00)	18.79 (p=0.15)	86.79 (p=0.00)
Level 5 facilities	-53.63 (p=0.01)	34.04 (p=0.01)	-19.59 (p=0.13)	34.04 (p=0.01)
Level 6 facility	-0.76 (p=0.02)	16.26 (p=0.01)	16.26 (p=0.01)	16.26 (p=0.01)

A closer look at the delivery service utilization trends identified during the 6 months before policy implementation indicates the presence of a decreasing trend in the utilization of facility-based delivery services (slope=-124.90, p=0.02). During the six months after policy implementation, the trend reversed, and a significant increase in the number of deliveries performed in health facilities was observed (slope=111.77, p=0.0). During the three months before policy implementation, a minimal and nonsignificant decrease in the number of deliveries performed in the evaluated health facilities was identified (slope=-13.13, p=0.06). Within the three months following policy implementation, the number of deliveries conducted in the health facilities increased significantly, with a mean monthly increase of 111.77 births (p=0.0).

Diagnostic tests were performed to assess the general fit of the model, and stationary R-squared and traditional R-squared (R^2) values were calculated; in this case, both the stationary and the traditional R^2 tests yielded a value of 0.73, implying that 73% of the model was explained by the policy intervention. In addition, a root mean square error (RSME) value of 384.22 was identified, suggesting that a large portion of the variability observed in the number of deliveries could be explained by the predictive model. The mean absolute percentage error (MAPE) value of 7.25 indicated that the values predicted using the policy implementation models were, on average, within 7.25% of the actual values (Table 3).

Rejected

Table 3: Fit of the delivery number model.

Fit statistic	Mean	SE	Minimum	Maximum
Stationery R-squared	0.73	0.16	0.44	0.90
R -squared	0.73	0.16	0.44	0.90
RMSE	384.22	241.59	105.14	778.47
MAPE	7.25	3.24	3.62	13.35

Both the stationary R-squared and traditional R-squared values for all 77 health facilities were 81.5% (p=0.15), as illustrated in Table 4. The stationary R-squared and traditional R-squared values varied (from 73.1% to 43.7%) across various categories of health facilities. This finding indicated that although policy implementation resulted in a remarkably high number of facility-based deliveries, this intervention had a non-uniform effect on delivery service utilization across the 77 health facilities (p>0.05).

Table 4: Delivery number model statistics.

	Model statistics			Ljung-Box		
Model	**Number of Predictors**	**Stationery R-squared**	**R-squared**	**Statistics**	**DF**	**Significance**
All facilities	3	0.82	0.82	22.87	17	0.15
Urban based facilities	3	0.73	0.73	20.71	17	0.24
Rural based facilities	3	0.90	0.90	23.00	17	0.15
Maternity home	3	0.44	0.44	10.68	17	0.87
Level 4 health facilities	3	0.89	0.89	28.10	17	0.04
Level 5 health facilities	3	0.62	0.62	26.92	17	0.06
Level 6 health facility	3	0.70	0.70	18.09	17	0.38

Table 5: Maternal mortality rates.

Variable	Variable description	MMR pre-policy	MMR post-policy	P value
Location	Rural-Based facilities	158.20	116.70	0.02
	Urban-Based facilities	326.00	324.40	0.83
Facility level	Maternity Home	44.80	43.10	0.52
	Level 4 facilities	181.50	182.60	0.19
	Level 5 facilities	254.10	196.70	0.11
	Level 6 facility	1,125.80	983.30	0.48
All the 77 facilities		258.30	237.10	0.07

Table 6: Quarterly trends in maternal mortality rate.

Facility	Slope 24 months pre-policy	Slope 12 months pre-policy	Slope 6 months pre-policy	Slope 3 months pre-policy	Slope 3 months post-policy	Slope 6 months post-policy	Slope 12 months post-policy	Slope 24 months post-policy
All the 77 health facilities	-1.64 (p=0.20)	-1.64 (p=0.20)	-5.12 (p=0.01)	-1.64 (p=0.20)	3.486 (p=0.01)	3.49 (p=0.01)	3.48 (p=0.01)	3.47 (p=0.01)
Urban-based facilities	-1.92 (p=0.51)	-1.92 (p=0.51)	-7.00 (p=0.09)	-1.92 (p=0.51)	5.09 (p=0.08)	5.09 (p=0.08)	5.09 (p=0.08)	5.09 (p=0.08)
Rural-based facilities	-1.38 (p=0.40)	-1.38 (p=0.40)	-2.37 (p=0.31)	-1.38 (p=0.40)	0.99 (p=0.54)	0.99 (p=0.54)	0.99 (p=0.54)	0.99 (p=0.54)
Maternity hospital	-0.08 (p=0.94)	-0.08 (p=0.94)	-2.25 (p=0.17)	-0.08 (p=0.94)	2.17 (p=0.06)	2.17 (p=0.06)	2.17 (p=0.06)	2.17 (p=0.06)
Level 4 facilities	-2.61 (p=0.20)	-2.61 (p=0.20)	-6.85 (p=0.02)	-2.61 (p=0.20)	4.24 (p=0.04)	4.24 (p=0.04)	4.24 (p=0.04)	4.24 (p=0.04)
Level 5 facilities	-4.51 (p=0.06)	-4.51 (p=0.06)	-6.70 (p=0.05)	-4.51 (p=0.06)	2.19 (p=0.36)	2.19 (p=0.36)	2.19 (p=0.36)	2.19 (p=0.36)
Level 6 facilities	8.50 (p=0.42)	8.50 (p=0.42)	11.05 (p=0.46)	8.50 (p=0.42)	-2.55 (p=0.81)	-2.55 (p=0.81)	-2.55 (p=0.81)	-2.55 (p=0.81)

Maternal mortality rate

A non-significant decrease in the rate of maternal mortality in the 77 health facilities was identified, with the mortality rate decreasing from 258.3/100,000 live births to 237.1/100,000 live births (p=0.07) following policy implementation (Table 5).

The ARIMA model parameters for the pre-intervention slope that was calculated using data from the 77 health facilities showed a nonsignificant decrease in the rate of quarterly maternal mortality (slope=-1.64, p=0.20) during the 24 months preceding user fee removal. During the 24 months after free maternity health care services were first offered, a non-significant increase in the rate of quarterly maternal mortality was observed in the health facilities under consideration (slope=3.49, p=0.01). This finding indicated that the free maternal health care policy did not have a significant effect on facility-based maternal mortality rates (Table 6).

Table 7: Fit of the maternal mortality rate model.

Fit statistic	Mean	SE	Minimum	Maximum
Stationery R-squared	0.13	0.05	0.05	0.20
R -squared	0.13	0.05	0.05	0.20
RMSE	112.66	118.61	45.75	378.37
MAPE	33.98	11.33	16.39	46.91

Both the stationery R-squared and traditional R-squared (R^2) values for the model were 0.126, implying that only 12.6% of the variance observed in maternal mortality rate could be explained by the free maternal health care policy intervention. The RSME value of 112.67 indicated that the interrupted time series model was reliable in predicting maternal mortality trends. The calculated MAPE indicated a 33.77% variation from the model prediction following the policy intervention (Table 7).

Table 8: Maternal mortality model statistics.

	Model statistics			Ljung-Box		
Model	**Number of predictors**	**Stationery R-squared**	**R-squared**	**Statistics**	**DF**	**Significance**
All the 77 facilities	3	0.20	0.20	15.78	17	0.54
Urban based facilities	3	0.09	0.09	12.40	17	0.78
Rural based facilities	3	0.15	0.15	16.57	17	0.48
Maternity home	3	0.12	0.12	19.27	17	0.65
Level 4 facilities	3	0.12	0.12	24.63	17	0.31
Level 5 facilities	3	0.43	0.43	30.11	17	0.03
Level 6 facilities	3	0.56	0.56	20.64	17	0.24

Table 9: Neonatal mortality rates.

Variable	Variable Description	NMR Before Policy Implementation	NMR After Policy Implementation	P Value
Location	Rural-Based facilities	10.30	9.90	0.21
	Urban-Based facilities	35.10	34.20	0.45
Facility level	Maternity Hospital	24.20	24.90	0.51
	Level 4 facilities	7.30	6.60	0.17
	Level 5 facilities	26.90	26.40	0.81
	Level 6 facility	102.30	104.40	0.54
All the 77 facilities		23.30	22.90	0.14

Overall, the Ljung-Box test statistics were not significant for the 77 health facilities (p=0.54). Significant Ljung-Box test statistics were identified for level 5 health facilities only (30.64, p=0.03). The stationary R-squared and traditional R-squared values indicated that only a minimal decline in maternal mortality rate occurred in the 77 health facilities (0.19), with the greatest decline in maternal mortality rates identified in the level 6 health facility (0.56), as illustrated in Table 8. Based on the results of the study, it was clear that the maternal mortality rates demonstrated a decreasing trend in the health facilities but exhibited marked although not consistently uniform seasonality. Thus, the free maternal health care policy intervention had a random and nonsignificant effect on maternal mortality rates across all the health facilities.

Neonatal mortality rate

A nonsignificant decline in neonatal mortality rates was identified, with rates decreasing from 23.3/1,000 live births to 22.9/1,000 live births (p=0.14) following policy implementation (Table 9).

Interlaced

The pre-intervention slope indicated the presence of a nonsignificant decreasing trend in the quarterly neonatal mortality rates across all the health facilities over the course of the 24 months preceding policy implementation (slope= -0.09, p=0.24). Implementation of the policy did not significantly affect neonatal mortality rates during the first 24 months following policy implementation (slope=0.12, p=0.10), as illustrated in Table 10.

Table 10: Quarterly trends in neonatal mortality rate.

Facility	Slope 24 months pre-policy	Slope 12 months pre-policy	Slope 12 months post- policy	Slope 24 months post-policy
All the 77 health facilities	-0.09 (p=0.24)	-0.09 (p=0.24)	0.12 (p=0.10)	0.12 (p=0.10)
Urban-based facilities	-0.10 (p=0.48)	-0.10 (p=0.48)	0.32 (p=0.02)	0.32 (p=0.02)
Rural-based facilities	-0.08 (p=0.10)	-0.08 (p=0.10)	-0.04 (p=0.48)	-0.04 (p=0.48)
Maternity hospital	-0.16 (p=0.24)	-0.16 (p=0.24)	0.37 (p=0.01)	0.37 (p=0.01)
Level 4 facilities	-0.09 (p=0.06)	-0.09 (p=0.06)	0.09 (p=0.05)	0.09 (p=0.05)
Level 5 facilities	0.17 (p=0.27)	0.17 (p=0.27)	-0.22 (p=0.14)	-0.22 (p=0.14)
Level 6 facility	-0.15 (p=0.83)	-0.15 (p=0.83)	0.50 (p=0.48)	0.505 (p=0.48)
Facility	**Slope 6 months pre-policy**	**Slope 3 months pre-policy**	**Slope 3 months post-policy**	**Slope 6 months post-policy**
All the 77 health facilities	-0.21 (p=0.05)	-0.09 (p=0.24)	0.12 (p=0.10)	0.12 (p=0.10)
Urban-based facilities	-0.41 (p=0.04)	-0.10 (p=0.10)	0.32 (p=0.03)	0.32 (p=0.024)
Rural-based facilities	-0.05 (p=0.49)	-0.08 (p=0.03)	-0.04 (p=0.48)	-0.04 (p=0.48)
Maternity hospital	-0.53 (p=0.01)	-0.161 (p=0.24)	0.37 (p=0.01)	0.37 (p=0.01)
Level 4 facilities	-0.12 (p=0.01)	-0.09 (p=0.06)	0.09 (p=0.05)	0.09 (p=0.05)
Level 5 facilities	0.39 (p=0.07)	0.17 (p=0.27)	-0.22 (p=0.14)	-0.22 (p=0.14)
Level 6 facility	-0.64 (p=0.52)	-0.15 (p=0.83)	0.50 (p=0.48)	0.50 (p=0.48)

Table 11: Fit of the neonatal mortality rate model.

Fit statistic	Mean	SE	Minimum	Maximum
Stationery R-squared	0.33	0.15	0.13	0.59
R -squared	0.33	0.15	0.13	0.59
RMSE	688.10	410.34	101.38	1333.40
MAPE	17.96	20.75	6.94	64.32

Table 12: Neonatal mortality rate model statistics.

	Model statistics			Ljung-Box		
Model	**Number of Predictors**	**Stationery R-squared**	**R-squared**	**Statistics**	**DF**	**Significance**
All the 77 facilities	3	0.11	0.11	17.34	17	0.43
Urban based facilities	3	0.18	0.18	14.19	17	0.65
Rural based facilities	3	0.09	0.09	13.70	17	0.30
Maternity home	3	0.18	0.18	19.54	17	0.65
Level 4 health facilities	3	0.21	0.21	21.89	17	0.19
Level 5 health facilities	3	0.08	0.08	33.29	17	0.10
Level 6 health facility	3	0.06	0.06	15.01	17	0.60

Only 32.90% of the minimal and non-significant change observed in the neonatal mortality rates could be attributed to policy implementation, as illustrated by the stationary R-squared and traditional R-squared (R^2) values presented in Table 10. The RSME and MAPE values for this model were 688.10 and 17.96, respectively (Table 11).

The general fit of the model for all 77 health facilities was not significant (p>0.05). Both the stationary R-squared and traditional R-squared values indicated that only 10.5% of the variation could be explained by the model, implying that policy implementation was associated with only a minimal difference in neonatal mortality rates when compared with baseline figures (Table 12).

DISCUSSION

A statistically significant increase in facility deliveries was observed in Kenya following the implementation of the free maternal health care policy in 2013. This result is similar to observations of the implementation of free maternal health care policies in other African countries.[25-28] This finding indicated that applying user fees for delivery services in health facilities may limit the demand for delivery services, and thus elimination of user fees for maternity services may improve access to skilled delivery services. The increase in facility-based deliveries remained consistently high over the two years post-policy implementation that was evaluated. This finding is in contrast with other regional studies, in which increased utilization of delivery care services was documented during the initial three months following user fee removal.[28,29] The high utilization of free delivery services over a long period of time identified in this study creates an opportunity to reduce maternal and neonatal mortality.

Implementation of the free maternal health care policy in Kenyan public health facilities did not have a significant effect on maternal and neonatal mortality rates. This observation is consistent with the results of other local and international studies, which have shown user free health policies to have limited or no effect on maternal and neonatal mortality rates.[29-33] As pregnancy-related deaths may be attributed to delays in deciding to seek skilled delivery services, delays in arriving at health facilities and delays in receiving adequate treatment and referral, the findings of this study emphasize the fact that other factors may contribute to pregnancy-related deaths in Kenyan public health facilities.[34]

Delays in utilizing free delivery services may occur because of low levels of autonomy, low awareness of the availability and importance of skilled delivery services and low perception of pregnancy risk factors in pregnant women. In addition, the long distances from health facilities, unavailability and high costs of transport services, poor roads and rugged geography may also hinder accessibility of free delivery services.[34] Previous assessments in Kenyan public health facilities have reported health systems gaps in service delivery.[35,36] These gaps include drug and supply shortages, inadequate health staff to provide care to a high number of mothers seeking delivery services, health worker demotivation, delayed reimbursement of costs incurred when providing free maternal health care services, apathy related to free delivery services due to privacy concerns and poor referral channels. The interplay between these challenges and pregnancy-related mortality needs to be further analyzed and addressed.

CONCLUSION

The elimination of user fees for delivery services in Kenya resulted in a significant increase in the number of deliveries conducted in Kenyan public health facilities; this result indicates that cost may be a key deterrent to delivery service utilization. This finding implies that the removal of user fees for delivery services may serve as an important strategy in the effort to increase skilled delivery service utilization. However, this policy intervention appeared to have no significant effects on maternal and neonatal mortality rates. This lack of effect indicates that low utilization of skilled delivery services may not be the only factor contributing to pregnancy-related deaths in developing countries such as Kenya. In addition to eliminating fees to improve health service access, there is a need to simultaneously address other social, economic, political and contextual factors that are known to contribute to pregnancy-related deaths.

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