



Pattern of Obstetric Clinic Attendance, Deliveries and Neonatal Outcome at a Tertiary Hospital during and after a Free Medical Care Programme

**P. A. Awoyesuku^{1*}, D. A. MacPepple¹, B. O. Altraide¹, D. H. John¹
and N. J. Kwosah¹**

¹*Department of Obstetrics and Gynaecology, Rivers State University Teaching Hospital,
6-8 Harley Street, Old G.R.A, Port Harcourt, Nigeria.*

Authors' contributions

This work was carried out in collaboration among all authors. Author PAA designed the study, performed the statistical analyses and wrote the first draft of the manuscript. Authors DAMP, BOA, DHJ and NJK assisted in data collection, managed the analyses of the study and literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JAMMR/2020/v32i230363

Editor(s):

(1) Dr. Josephat M. Chinawa, Department of Pediatrics, University of Nigeria, Enugu Campus, Ituku Ozalla, Enugu, Nigeria and Department of Pediatrics, Enugu State University of Science and Technology, Nigeria.

Reviewers:

(1) Reda M. Nabil, Egypt.

(2) S. Sreelatha, India.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/54615>

Original Research Article

Received 06 December 2019

Accepted 12 February 2020

Published 21 February 2020

ABSTRACT

Background: Policies and programs aimed at giving access to healthcare free of charge for some segments of the population are increasingly being put in place by low and middle-income countries. The impact of such policies has so far been rather mixed.

Objective: This study sought to determine the pattern of obstetrics clinic attendance, deliveries and neonatal outcome during and after a Free Medical Care (FMC) Programme. Was there any significant difference during and after the FMC programme?

Methodology: This was a retrospective population-based study involving the three years of a free medical care programme (2012-2014) and the three years after the programme (2015-2017). Data on antenatal/postnatal clinic attendance, method of deliveries and neonatal outcome were retrieved from the hospital records. The Epi-Info 7 statistical software was used for analysis and statistical significance was set at $p < 0.05$.

*Corresponding author: E-mail: pawoyesuku@yahoo.co.uk;

Results: Mean antenatal attendance was 20763.67±6085.71 and 14269.00±1932.71 during and after the programme respectively, but this difference was not significant (P = 0.143). The mean postnatal attendance of 1457.7±447.69 during and 1025.7±193.52 after was not significant (P=0.200). There was more total number of deliveries during (8596) than after (5989) but this was not significant (P=0.171). There were more operative deliveries during (51.9%) than after (39.3%) and this was significant (P=0.0001). The CS rate was 43.1% with previous CS and CPD both responsible for over 40%. Livebirths were 8,272 (58.8%) during and 5,796 (41.2%) after, which was significant (P=0.0001). There was significant difference (P=0.006) in the macerated stillborn (MSB) rate during (44.2%) and after (55.8%). The stillborn rate was 66.9 during and 98.2 after the programme.

Conclusion: There were more clinic attendance and deliveries during the programme, but it was not statistically significant. There was however statistically significant increase in operative delivery, total births and livebirths, and reduced MSB rate during the programme.

Keywords: Free medical care; clinic attendance; deliveries; neonatal outcome; tertiary hospital.

1. INTRODUCTION

Free Medical (health) care (FMC) policies aim to reduce the financial barriers that people experience when trying to access health services. An FMC policy eliminates formal user fees at the point of services; this can be for all services, for primary health care, for selected population groups, for selected services for everyone or for selected services for specific population groups, usually characterized by medical or economic vulnerability [1]. These services are chosen to protect population groups deemed to be especially vulnerable, and particularly the poor. By introducing an FMC policy, a government explicitly intends to make progress towards universal health coverage (UHC) by increasing service utilization for specific services, in line with people's health needs, and by improving financial protection [1]. Implicitly, FMC also aims to enhance the quality of health services guaranteed through this policy.

In the wake of the Bamako Initiative in 1987, a policy consensus was reached recommending the use of cost-recovery in the form of user fees in order to secure the supply of drugs and improve the quality of care in low-income countries [2]. Yet, despite some early successes [3], the performance of cost-recovery policies inspired by the Bamako Initiative remain controversial [4,5]. In the last two decades, increased fiscal space have led several developing countries to make progress towards the objective of UHC. These advances are often made in a piecemeal fashion and do not follow simple, pre-existing strategies [6]. A policy trend that is gaining grounds is the removal of user fees and the return to free health care provision. While these policies often have important effects

upon being implemented, their continued effectiveness has been questioned due to concerns about the sustainability of their financing [7].

The Government of Rivers State of Nigeria in 2012 declared an FMC programme across board, for all tax paying residents of the State. Services under the policy included antenatal and postnatal care, assisted deliveries and caesarean section, complete with drugs and consumables, among others. These were paid for by the government to the hospital by way of reimbursement. This was however discontinued in 2015 probably due to inability to sustain its financing.

Similar FMC programmes have been implemented in other States in Nigeria and other African countries, with reported positive impact on healthcare delivery. In Morocco, Cottin [8] studied the nationwide Medical Assistance Regime (RAMED) and found that the removal of user fees did have a positive impact on access to health and that the impact comes mostly from poorer, rural households. Kenya abolished delivery fees in all public health facilities in 2013 with an aim of promoting health facility delivery service utilization and reducing pregnancy-related mortality in the country. In 2018 Gitobu et al. [9] reported a statistically significant increase in the number of facility-based deliveries in Kenya, though there were no significant changes in the ratio of maternal mortality and the rate of neonatal mortality.

Back in Nigeria, in 2010, the Cross-River State Government introduced free maternal care services to all categories of pregnant women in the state, with a view to promote increased

utilization of antenatal care and utilization of skilled birth attendants in state-owned facilities. This has been reported to have caused increased number of antenatal attendances, hospital supervised deliveries and prompt referral [10]. In Kwara State, a state-wide health insurance scheme in the rural areas for maternal care services has been shown to be efficient and cost-effective [11].

This study therefore aims to provide evidence concerning the real-world effect of one such gratuity programme by determining the proportion of antenatal and postnatal clinic attendance, pattern of obstetrics deliveries and neonatal outcome during and after the FMC Programme in Rivers State, Nigeria. Was there any significant difference during and after the programme?

2. METHODOLOGY

This was a retrospective population-based study involving the three years of a free medical care programme and the three years after the programme. Data on antenatal clinic attendance, postnatal clinic attendance, method of maternal deliveries and neonatal outcome were retrieved, from the departmental annual reports and hospital records, during the FMC program (2012 to 2014) and after the FMC programme (2015 to 2017). Case notes of the patients were however, not retrieved to check and analyze for the outcome of treatments and procedures. Patients with complete relevant information in the registers were included and those with incomplete data were excluded. The Epi-Info 7 statistical software was used for analysis. Descriptive statistics employed the use of charts, frequencies and proportions. Pearson's Chi square and Chi Square for homogeneity were used as appropriate in determining significant differences in proportions. A p-value of less than 0.05 was considered statistically significant.

This study was conducted in the RSUTH, a tertiary hospital owned and funded by the Government of Rivers State and patients are expected to pay directly for services (except few that participate in the National Health Insurance Scheme). During the FMC programme (2012-2014) user fees for antenatal care, postnatal care and delivery including Caesarean section, as well as drugs and consumables, but excluding blood for transfusion, was paid for by the government to the hospital by way of reimbursement.

Afterwards the programme was scrapped and patients have to bear the full cost of all treatment.

The hospital provides emergency obstetric services to women referred from other centers, as well as providing antenatal care and delivery services for low and high-risk pregnant women booked with the hospital. The hospital is well equipped and has availability of qualified team comprising of Obstetricians, Pediatricians and Anaesthetists. There is availability of laboratory and blood bank services in the hospital.

3. RESULTS

3.1 Clinic Attendance

During the period under review, total number of antenatal clinic (ANC) attendees was 62,291 during the FMC programme and 42,807 after the FMC programme, with Mean attendance of 20763.67 ± 6085.71 and 14269.00 ± 1932.71 respectively, but the difference was not statistically significant ($P = 0.143$), see Fig. 1 and Table 1. Also, postnatal clinic (PNC) attendance was 4,373 during and 3,077 after the programme, with Mean attendance of 1457.67 ± 447.69 and 1025.67 ± 193.52 respectively, with the difference not statistically significant ($P = 0.200$). The proportion of ANC attendance to PNC attendance is about 7%, both during and after the FMC programme.

3.2 Deliveries (Total and Mode)

Table 2 shows comparison of total deliveries during the period. A total of 8,596 deliveries were taken during the FMC programme as against 5,989 after the programme, and the difference was not statistically significant ($P = 0.171$). Fig. 2 shows the proportion of the different modes of deliveries during the period. Spontaneous vaginal deliveries (SVD) constituted 48.1% during FMC but 60.7% after FMC. There were more operative deliveries during FMC (51.9%) than after FMC (39.3%). There were more elective CS, emergency CS and assisted vaginal deliveries (AVD) during the FMC programme and the differences were statistically significant ($P=0.0001$).

3.3 Caesarean Section (CS) Rates

The overall CS rate during the study period was an average of 43.1% with a range of 43% - 52.4% during the FMC programme and 32.5% - 47.3% after the FMC programme (Fig. 3). The CS rates throughout the years were consistently

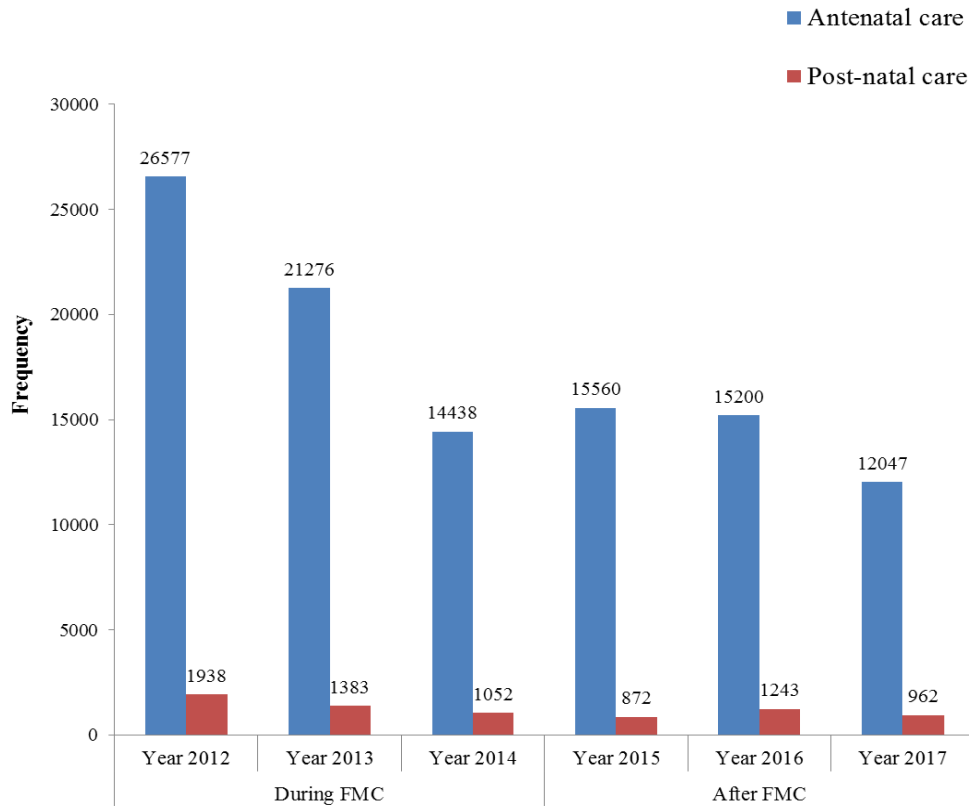


Fig. 1. Distribution of antenatal/post-natal care attendance during and after FMC programme

Table 1. Comparison of mean number of antenatal and post-natal care attendance during and after FMC programme

Variables	During FMC Mean ± SD	After FMC Mean ± SD	t	p-value
Number of ANC attendees	20763.67±6085.70	14269.00±1932.71	1.821	0.143
Number of PNC attendees	1457.67±447.69	1025.67±193.52	1.534	0.200

SD – Standard deviation

higher among booked than unbooked patients. Table 3 shows the various indications for CS throughout the study period, with previous CS and Cephalo-pelvic disproportion (CPD) both being responsible for 40.3% to 47.8% during and after the FMC programme respectively. Fig. 4 shows a comparison of the proportion of the various indications for CS during and after the FMC programme. Pre-eclampsia/Eclampsia, Multiple pregnancy, antepartum haemorrhage and obstructed labour were more after the FMC programme, while fetal distress, breech presentation, abnormal lies and other indications (delayed second stage, bad obstetric history, completed

family size, cervical dystocia, prolonged rupture of membranes and patient's request e.t.c) being more during the FMC programme.

Table 2. Comparison of deliveries during and after Free Medical Care (FMC) programme

Delivery	During FMC n (%)	After FMC n (%)
Singleton	8396 (97.7)	5832 (97.4)
Twins	192 (2.2)	145 (2.4)
Triplets	8 (0.1)	12 (0.2)
Total	8596 (100.0)	5989 (100.0)

Chi Square= 0.3532; p-value=0.1710

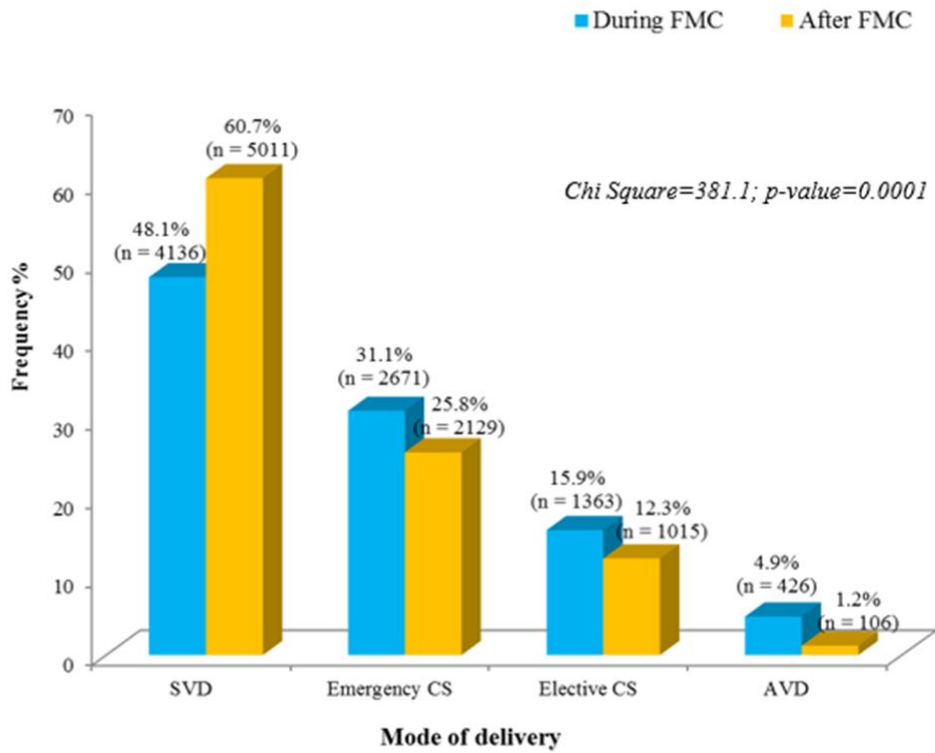


Fig. 2. Proportion of the different modes of delivery during and after FMC programme

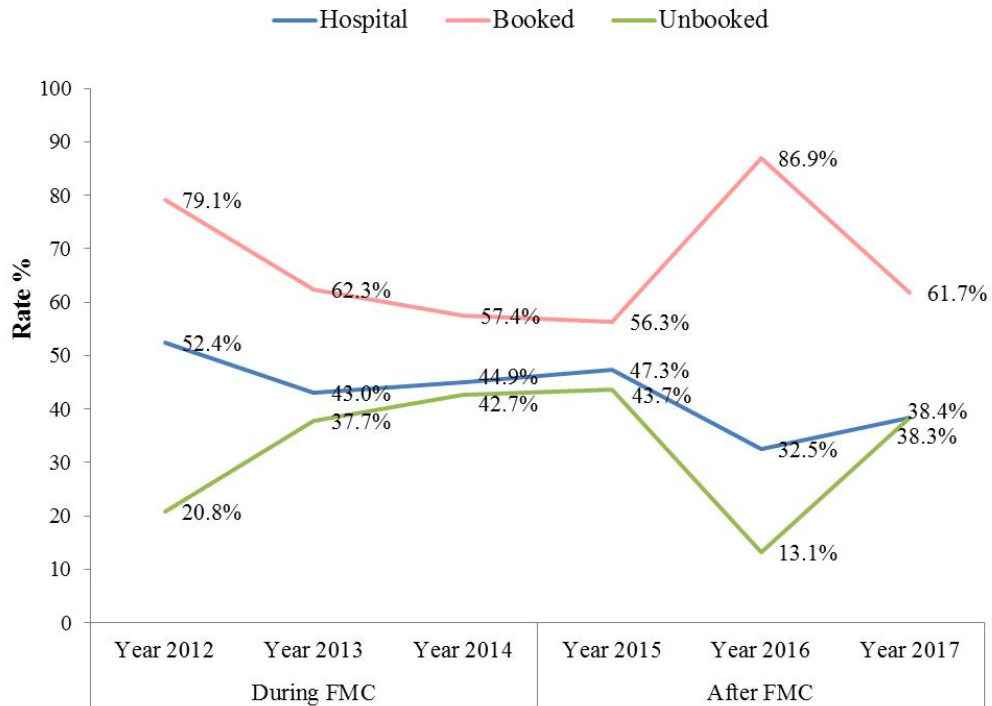


Fig. 3. Hospital (Booked and unbooked) CS rates during and after FMC programme

Table 3. Indications for CS each year during and after FMC programme

Indications for CS	During FMC				After FMC	
	Year 2012 n (%)	Year 2013 n (%)	Year 2014 n (%)	Year 2015 n (%)	Year 2016 n (%)	Year 2017 n (%)
Previous CS	484 (29.7)	375 (26.8)	245 (24.4)	345 (36.1)	331 (29.2)	391 (37.1)
CPD	184 (11.3)	172 (12.3)	163 (16.2)	155 (16.2)	161 (14.2)	120 (11.4)
Fetal distress	113 (6.9)	92 (6.6)	72 (7.2)	27 (2.8)	73 (6.4)	46 (4.4)
Breech	83 (5.1)	85 (6.1)	28 (2.8)	36 (3.8)	55 (4.9)	28 (2.7)
Pre-eclampsia	65 (4.0)	94 (6.7)	58 (5.8)	52 (5.4)	69 (6.1)	77 (7.3)
Abnormal lie	56 (3.4)	58 (4.1)	74 (7.4)	28 (2.9)	33 (2.9)	35 (3.3)
Multiple gestation	54 (3.3)	56 (4.0)	24 (2.4)	22 (2.3)	38 (3.4)	71 (6.7)
Failed Induction	47 (2.9)	27 (1.9)	22 (2.2)	21 (2.2)	18 (1.6)	11 (1.0)
PMTCT	42 (2.6)	27 (1.9)	11 (1.1)	3 (0.3)	27 (2.4)	10 (0.9)
Eclampsia	36 (2.2)	31 (2.2)	15 (1.5)	11 (1.2)	38 (3.4)	37 (3.5)
APH	34 (2.1)	29 (2.1)	52 (5.2)	78 (8.2)	49 (4.3)	44 (4.2)
Obstructed labour	21 (1.3)	21 (1.5)	23 (2.3)	63 (6.6)	43 (3.8)	30 (2.8)
Cord prolapse	10 (0.6)	8 (0.6)	12 (1.2)	15 (1.6)	11 (1.0)	6 (0.6)
Diabetes	10 (0.6)	14 (1.0)	10 (1.0)	36 (3.8)	12 (1.1)	4 (0.4)
Hand prolapse	5 (0.3)	4 (0.3)	5 (0.5)	2 (0.2)	2 (0.2)	3 (0.3)
Retained twin	3 (0.2)	2 (0.1)	6 (0.6)	3 (0.3)	1 (0.1)	4 (0.4)
SCD	2 (0.1)	4 (0.3)	3 (0.3)	0 (0.0)	3 (0.3)	2 (0.2)
Others	380 (23.3)	300 (21.4)	183 (18.1)	59 (6.2)	170 (15.0)	135 (12.8)
Total	1629 (100.0)	1399 (100.0)	1006 (100.0)	956 (100.0)	1134 (100.0)	1054 (100.0)

Table 4. Neonatal outcome during and after FMC programme

Parturition	During FMC n (%)	After FMC n (%)	Total n (%)	Chi square for homogeneity	p-value
Live births	8272 (58.8)	5796 (41.2)	14068 (100.0)	435.782	0.0001*
Male	4290 (58.5)	3038 (41.5)	7328 (100.0)		
Females	3982 (59.1)	2758 (40.9)	6740 (100.0)		
Fresh still births	285 (50.4)	280 (49.6)	565 (100.0)	0.044	0.833
Macerated still births	243 (44.2)	307 (55.8)	550 (100.0)	7.447	0.006*
Total Births	8800 (58.0)	6383 (42.0)	15183 (100.0)	384.765	0.0001*

*Statistically significant (p<0.05)

3.4 Neonatal Outcome

Table 4 and Fig. 5 relates to the neonatal outcomes during the study period. Total births recorded during the FMC programme was 8,800 (58%) compared to 6383 (42%) and this was statistically significant (P=0.0001). Similarly, the total livebirths were 8,272 (58.8%) during the FMC and 5,796 (41.2%) after the programme, which was also statistically significant (P=0.0001). There was statistically significant difference (P=0.006) in the macerated stillborn (MSB) rate during the FMC programme (243 or 44.2%) and after the Programme (307 or 55.8%). The overall stillborn rate was 66.9/1000 livebirths during the FMC programme and 98.2/1000 livebirths after the FMC programme, with the

yearly values during the programme all lower than after the programme.

4. DISCUSSION

This study, as expected, showed that there was increased utilization of antenatal care services and institutional delivery during the FMC programme. There were over 6000 (30%) more mean ANC attendance and over 2600 (30%) more deliveries in the hospital during, than after, the FMC programme, although this was not statistically significant. FMC policies may actually trigger an increase in the use of services [1] and similar other studies have reported an increased utilization of antenatal care and delivery services in their study areas [8,9,10]. The study also

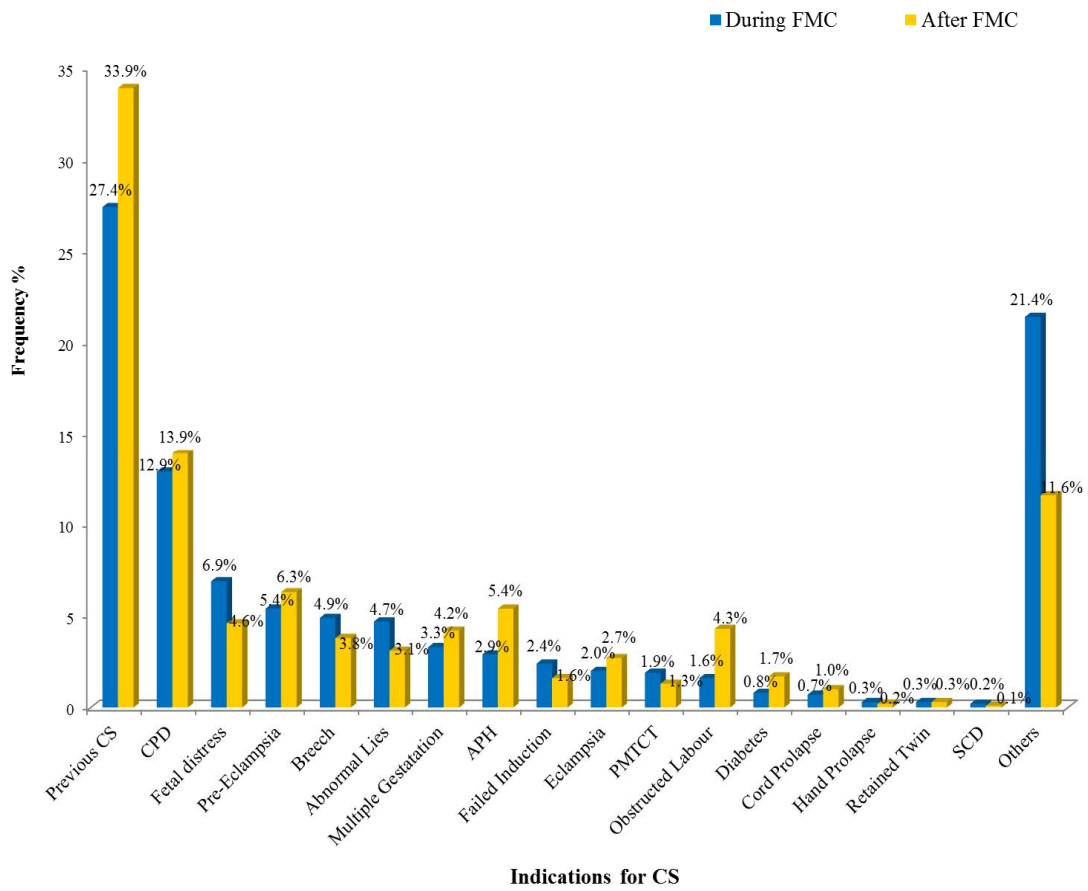


Fig. 4. Comparison of Indications for CS during and after FMC programme

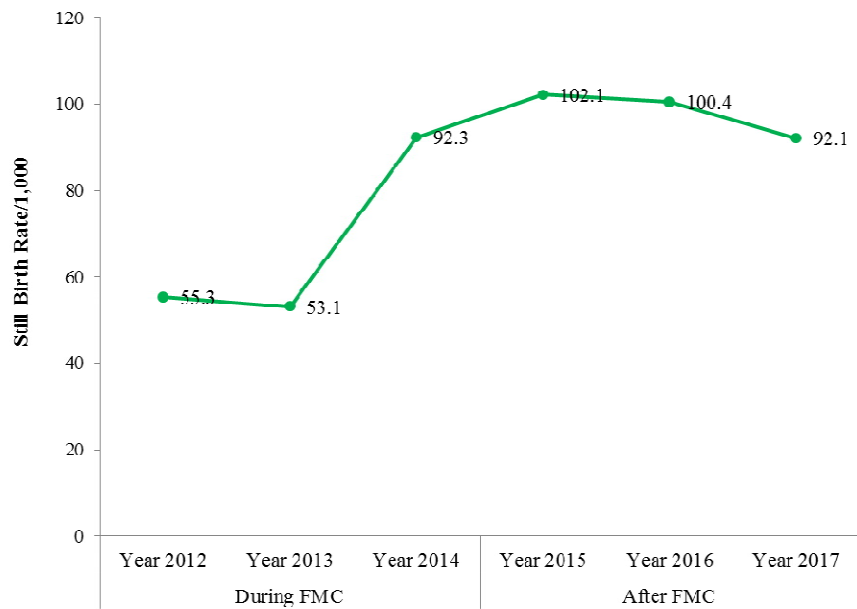


Fig. 5. Line graph showing rate of stillbirth during and after FMC programme

revealed a 30% increase in the PNC attendance during the FMC programme, however, the proportion of ANC attendance to PNC follow-up of about 7%, both during and after the FMC programme, is abysmally low. This is despite the fact that the cost for postnatal consultation and mandatory Pap smear test has already been paid for when registering for ANC. There is need for concerted efforts to encourage the women to see the necessity and benefits of postnatal care.

This study revealed a statistically significant difference in the comparison of mode of delivery during and after the FMC programme. The proportion of spontaneous vaginal deliveries was more outside the FMC programme than during the programme. There were more operative deliveries (elective CS, emergency CS and assisted vaginal deliveries) during the FMC programme and this may likely be due to the fact that more difficult cases, not just an increased number, were referred to the hospital to utilize the free user fee policy.

The overall hospital CS rate was 43% with yearly figures ranging from 32%-52%, of course with the higher figures seen during the FMC programme. This figure is higher than the 35.9% reported by Adekanle et al. [12], 30.8% reported by Igwebueze [13] and 29.4% reported by Eleje et al. [14]. The CS rate in this study is one of the highest across the country despite strong aversion of Nigerian women to this procedure [15]. This can be attributed to increased referral of cases requiring CS to the hospital due to the elimination of user fees. The cost of the surgery is one reason for aversion to the procedure by Nigerian women in the first place.

Majority (>40%) of the indications for CS was due to the duo of previous CS followed by CPD irrespective of the FMC programme. In many studies previous CS has been found to be the major indication for CS and responsible for the increasing CS rates [12,13,14,16]. Efforts to reduce the incidence of primary CS and encouraging vaginal birth after one previous CS delivery may assist in keeping the CS rate low. One interesting finding from this study is that over the years the CS rates were higher in Booked, than Unbooked, patients irrespective of the FMC programme. This can be explained by the fact that, being a tertiary hospital, the Centre caters for high-risk pregnancies referred to it for

ANC registration, as well as those who primarily registered with it.

There were significantly more total births, livebirths and reduced stillborn rates during the FMC programme than after. This higher fetal salvage rate maybe attributable to the removal of difficulties and delays occasioned by the imposition of user fees at the service point, as well as early and prompt referral occasioning early arrival at hospital when the patients are not yet moribund. The overall stillborn rate was 66.9/1000 livebirths during the FMC programme and 98.2/1000 livebirths after the FMC programme, with the yearly values during the programme all lower than after the programme. The stillborn rate is a good indicator of quality of maternal care. The stillborn rates in this study though, are much higher than the current world stillbirth rate of 18.9 and Nigeria average of 42 as of 2009 [17] and also higher than the finding of 48 by Igwebueze 2015 [16].

5. CONCLUSION

The study showed that there were more obstetrics clinic attendance and maternal deliveries in the hospital during the FMC programme than outside the programme, although this was not statistically significant. There was however a statistically significant increase in the number of operative deliveries, total births and livebirths when the FMC programme was in place. There was also a considerable reduction in macerated stillbirths during the programme.

Policies removing user fees are good and of proven healthcare benefits, but its sustainability due to the huge financial burden is difficult. Free healthcare policies are recommended especially in low- and middle-income countries where poverty reduces utilization of healthcare services, as this study has shown increased utilization of antenatal care services and institutional deliveries and increased fetal salvage. Alternatively, a less robust programme targeting only the very poor and more vulnerable in the society, to reduce the financial burden, is recommended. A State-wide health insurance Scheme, modelled after the Kwara State health insurance, may also be a cost-effective alternative.

CONSENT

As per international standard or university standard written participant consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. World Health Organization (WHO). Health financing for universal coverage. WHO Newsletter; 2017.
Available: https://www.who.int/health_financing/topics/free-health-care/whats-free-health-care/en/
2. Gilson L, Mills A. Health sector reforms in sub-Saharan Africa: Lessons of the last 10 years. *Health Policy*. 1995;32(1-3):215–243.
3. Litvack JI, Bodart C. User fees plus quality equals improved access to health care: results of a field experiment in Cameroon. *Social Science & Medicine*. 1993;37(3): 369–383.
4. McIntyre D, Thiede M, Dahlgren G, Whitehead M. What are the economic consequences for households of illness and of paying for health care in low- and middle-income country contexts? *Social Science & Medicine*. 2006;62(4): 858–865.
5. Lagarde M, Palmer N. The impact of user fees on access to health services in low- and middle-income countries. *Cochrane Database Syst Rev*. 2011;4(4): CD009094.
6. Lagomarsino, G, Garabrant A, Adyas A, Muga R, Otoo N. Moving towards universal health coverage: Health insurance reforms in nine developing countries in Africa and Asia. *The Lancet*. 2012;380(9845):933–943.
7. Yates R. Universal health care and the removal of user fees. *The Lancet*. 2009; 373(9680):2078–2081.
8. Cottin R. Free health care for the poor: A good way to achieve universal health coverage? Evidence from Morocco; 2018.
Available: <https://dial.ird.fr/content/download/311585/4781064/version/1/file/2018-16+access.pdf>
9. Gitobu CM, Gichangi PB, Mwanda WO. The effect of Kenya's free maternal care policy on the utilization of health delivery services and maternal and neonatal mortality in public health facilities. *MBC Pregnancy and Childbirth*. 2018;18:77.
Available: <https://dx.doi.org/10.1186/s12884-018-1708-2>
10. Archibong E, Agan U. Review of policies and programs for reducing maternal mortality and promoting maternal health in Cross Rivers State, Nigeria. *African Journal of Reproductive Health*. 2014;14 (3):37-42.
11. Gomez GB, Foster N, Brals D, Nellssen HE, Bolarinwa OA, Hendriks ME, et al. Improving maternal Care through a state-wide health insurance program: A cost and cost-effectiveness study in rural Nigeria. *PLoS ONE*. 2015;10(9):e0139048.
Available: <https://dx.doi.org/10.1371/journal.pone.0139048>
12. Adekanle DA, Adeyemi AS, Fasanu AO. Caesarean section at a tertiary institution in southwestern Nigeria – A 6-year review. *Open Journal of Obstetrics and Gynecology*. 2013;3:357-361.
Available: <https://dx.doi.org/10.4236/ojog.2013.33066>
13. Igwebueze OI. Indications for caesarean delivery in a State University Teaching Hospital, Southeast, Nigeria. *International Journal of Nursing and Healthcare (IJNHC)*. 2015;1(1):16-21.
Available: www.arcjournals.org
14. Eleje GU, Udigwe GO, Eke AC, Eke NO, Umeobika JC. The rate of caesarean section in Nnewi, Nigeria: A 10-year Review. *Afrimed Journal*. 2010;1(1): 11-14.
15. Sunday-Adeoye I, Kalu CA. Pregnant Nigerian women's view of caesarean section. *Nigerian Journal of Clinical Practice*. 2011;14:276-279.
Available: <https://dx.doi.org/10.4103/1119-3077.86766>
16. Igwebueze OI. Cincial audit of quality of intrapartum care in a State University Teaching Hospital, Enugu, Southeast,

- Nigeria. Journal of Women's Health Care. 2015;4:249.
Available: <https://dx.doi.org/10.4172/2167-0420-1000249>
17. World Health Organization (WHO). Current World Stillbirth Rate. WHO; 2011.
Available: http://www.who.int/reproductivehealth/topics/maternal_perinatal/stillbirth/en/

© 2020 Awoyesuku et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/54615>