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ORIGINAL ARTICLE

Implications of Performance-based Financing Implementation for Maternal and Child Health Outcomes in Nigeria: A Scoping Review

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Keywords

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ABSTRACT

Background: Performance-based financing (PBF) is seen as an open health system reform tailored to suit the needs of countries, even in a fragile context. It is thought to have the ability to address the strategic challenges of the sustainable development goals. This study explored the implementation of PBF in order to determine whether it improves maternal and child health outcomes in the Nigerian context.

Methods: This was a scoping literature review of online multiple databases and programme implementation documents. Six databases and an online library were searched using 30 key words, alone and in combination using Boolean terms. Thirty articles and five implementation documents were screened. At the end, 25 published articles and five implementation documents were reviewed. An adapted World Bank PBF conceptual framework was used for the review.

Results: We found mixed results across most of the service indicators consistent with findings in most lower, middle income countries. In both pilot states, the quality of health services, mainly technical, improved remarkably. There was improved utilisation of maternal and child health services, particularly institutional delivery, modern contraceptives and under-five vaccination. However, client dimension of quality was reportedly poor. The study found no impact of PBF on equity.

Conclusion: Collaborative partnership to develop policy frameworks for demand-side incentives to ensure equitable access to health services and sustainability of the project is essential. We further recommend that more incentives be paid for client quality dimension.

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INTRODUCTION

Nigeria, has over the years, engaged in several health sector reforms in order to strengthen the health system and improve, mainly, maternal and child health services and outcome. Despite these initiatives, the quality and utilisation of maternal and child health (MCH) services have remained low.[1-4] According to the 2016-2017 Multi-Indicators Cluster Survey (MICS), 65.8% of pregnant women attended antenatal care (ANC) at least once, 49.1% at least four times, but only 43% were delivered by a skilled attendant. Facility delivery was 37.5% with 37.1% accessing postpartum care. Similar findings were obtained in the 2018 Nigeria Demographic and Health Survey

(NDHS).[1] Contraceptive prevalence (CPR) was 17% with unmet needs of 27.6%. Vaccination coverage for routine immunisation was 23%. Only 26% of mothers took their children to the health facility or sort after medical personnel for care.[2] The country records a high level of inequity in the utilisation of MCH services, with the urban rich benefiting more than the rural poor. [3–5] Consequently, maternal mortality ratio and under-five mortality rates have remained unacceptably high and concentrated among the poor and uneducated.[6–8]

In 1987, Nigeria adopted the Bamako initiative which was aimed to increase access to Primary Health Care (PHC) services by improving facility autonomy, efficiency and effectiveness.[9] The facilities piloted for the initiative implemented integrated minimum healthcare package based on the needs of their communities.[9] The focus was on the availability of drugs and the continuum of care.[9] Bamako initiative was formulated on the concept of community participation and ownership of primary health care.[9,10] The initiative could not be sustained even when scaled up in many parts of the country because of the application of user fees.[9,10] Midwives service scheme was launched in 2009 to address the gap of human resource at the PHC level and improve access to MCH services.[11] The programme was stalled because some states and local government areas (LGA) failed to fulfil their part of the commitment, while poor utilisation of available midwives were reported as well.[11,12] Later in 2013, conditional cash transfer was piloted in 9 states in further attempt to address the demand-side barrier to utilisation of MCH services. Despite evidence on service uptake, the scheme was not scaled up beyond the pilot states.[13]

Performance-based financing (PBF) was first introduced in Nigeria in 2011 with pre-pilot studies, and the full pilot scheme began in 2014 in 3 states.[14] The primary aim was to increase delivery and use of high impact MCH interventions and to improve quality of care at selected health facilities in the participating states.[14] The best suited model that described the PBF implementation in Nigeria is 'The adaptation of PBF in Humanitarian settings, their drivers and facilitators conceptual framework.' It was initially designed to describe PBF adaptation in conflict areas (figure 1).[15] This model describes the core principles of PBF which are the theoretical basis for PBF and are found in all models of PBF design. This is the advantage it has over the framework by Health Results Innovation Trust Fund (HRITF), even though the latter has the advantage of linking PBF to the health system and outcome in its design.[16] The core principles of PBF as described in the framework (in line with Participant Context Concept (PCC) guidance for scoping review) are linking payment to performance, contracting, autonomy for health providers, end-user empowerment, equal access bonuses, and separation of functions.[15,17-18] These PBF principles have become codified over time and have helped in streamlining functions and roles.[18] Since this study is focusing on reviewing the pilot implementation of PBF and not necessarily an adaptation study, the conceptual framework has been modified based on the objectives of this study. The outer two concentric rings comprising of conceptual drivers of adaptation and organisational facilitators of adaptation were not considered. Instead, an inner concentric ring was added with PBF outcome at the centre as shown in

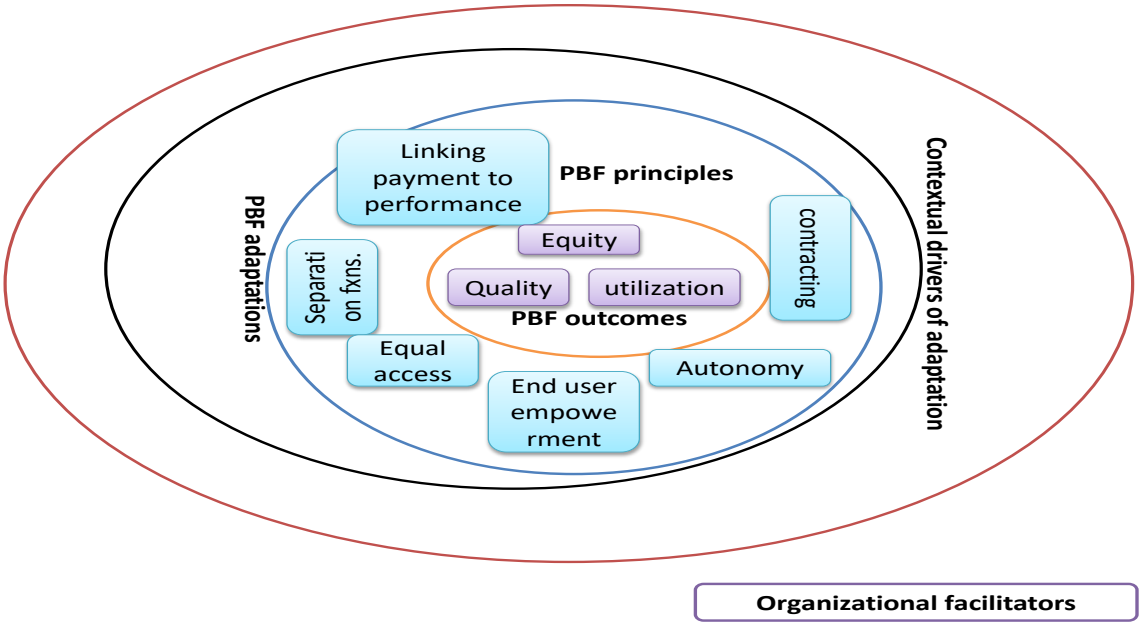

Figure 1: Conceptual framework for PBF implementation in Nigeria (adapted from Bertone et al. 2018)[15]

figure 1. The outcomes of PBF implementation in this study are the utilisation of MCH services (family planning, ANC, institutional delivery, postnatal care, Tetanus Toxoid, and full vaccination of children under-five years), quality of health services, and equity.

Performance-based financing is seen as an open health system reform tailored to suit the needs of countries, even in a fragile context.[19] It is thought to have the ability to address the strategic challenges of the sustainable development goals (SDGs).[20] Cochrane review of PBF implementation outcomes in different lower and middle-income countries (LMIC) has produced mixed results. It concluded by saying that "almost all dimensions of potential impact remain under-studied, including intended and unintended impact on health outcomes, equity, organizational change, user payments and satisfaction, resource use and staff satisfaction.[21] In another review, the authors are of the view that PBF could weaken health system, though the review lumped up all forms of PBF models and contexts.[22] Despite the criticism, a study in Haiti showed remarkable improvement in quality of health services and more than doubled growth of services in 3 years at very low incentives without compromising quality.[23] Similar findings were documented in Rwanda and the Democratic Republic of Congo.[24,25] This study therefore seeks to add to the body of knowledge on PBF, particularly from Nigeria where such studies are very rare, as it seeks to explore the implementation of PBF and answer the question whether PBF improves MCH outcomes in the Nigerian context.

METHODOLOGY

This was a scoping literature review involving desk review of pilot PBF programme in two of the three implementing states and a review of the literature on PBF. Most literatures reviewed were from Sub-Saharan Africa and other lower and middle income countries for contextual similarities. Traditional literature reviews which

Table 1: Search terms for literature review

	Search terms	Boolean terms
What	Performance-based financing Performance-based contracting Performance-based incentives Pay for performance Performance-based payment Results based financing Reward for performance Reward for results Fee for service Buying results Output-based aid Cash on delivery	AND OR NOT
	Autonomy Community empowerment Separation of function Incentives Equal access Contracting History Principles Theories	
	Maternal and child health Maternal and Child health services Equity Quality Outcome Utilization of health services Rich Poor Wealthy	
	Design Implementation	
Where	Africa Nigeria Sub Saharan Africa	

described published materials and provided an examination of recent or current literature were used to answer the research objectives. Two PBF pilot sites in Adamawa and Nasarawa States were used for this study. Ondo State, the third pilot state, was omitted from the study due to lack of relevant information on PBF at the State Ministry of Health and State Primary Health Care Development Agencies' (SPHCDA) websites. For review of literature on PBF, the search was restricted to sub-Saharan Africa because of the contextual similarities to Nigeria.

Search Strategy for Identifying Relevant Studies: A search of multiple online databases was conducted; articles were searched through PubMed, Scopus, Google Scholar, Cochrane library, VU online library link, World Health Organization (WHO) Federal Ministry of Health websites. The websites of National Primary Health Care Development Agency (NPHCDA), Adamawa State Primary Health Care Development Agency (ADPHCDA), and Nasarawa State Primary Health Care Development Agency (NSPHCDA) programme documents such as

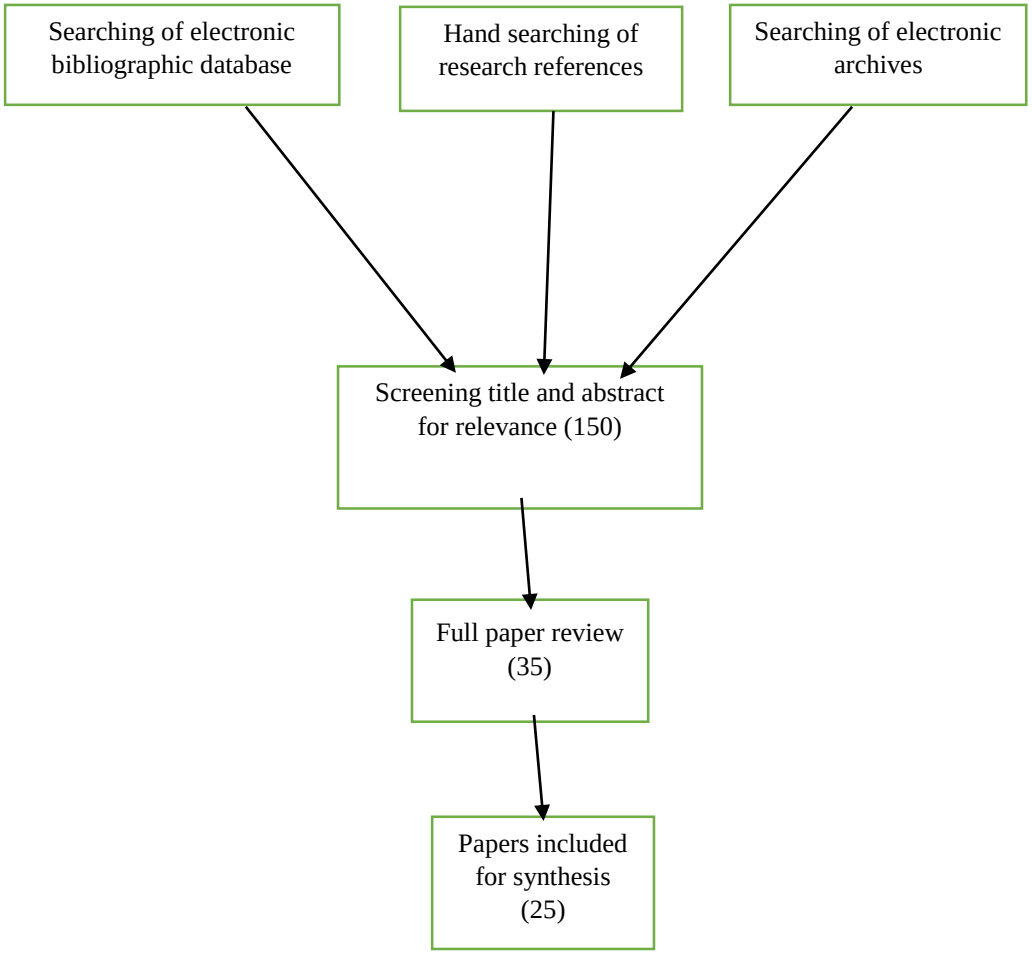

Figure 2: Flow Chart for literature selection of studies

program reports, minutes of meetings, monthly data reports, and evaluation reports were also searched. Other sources of data included national survey reports, and World Bank (WB) and WHO publications. Some relevant information was also obtained through phone calls and emails from States and National PBF programme officers in Nigeria.

Various search terms were used singly or in combinations, using the Boolean terms, phrases or single words to obtain the desired literature as presented in table 1. For literature search, the period from January 2000 to June 2021 was used to ensure that no important publication was missed. However, some older key historical documents and those derived from snowballing were also used. Only literature published in English language were selected.

Study selection: The flowchart in figure 2 describes how literatures for the research were selected from different sources. The selection criteria were: Articles published between January 2000 to June 2021 in English language; PBF or a similar concept as outlined in the search terms, as a major theme and articles from Sub-Saharan Africa on PBF which are focused on MCH services outcome. Articles included in the final review were contracting in PBF design; supply

side with or without demand side PBF; design base on the 6 principles of PBF. Articles targeting single vertical programs were excluded.

Ethical Consideration: No ethical approval required for this study being purely a literature review.

RESULTS

This section attempts to analyze the outcome of PBF based on its primary objective of increased quality of health services, increased utilization of maternal and child health services (ANC, institutional delivery, postnatal care, modern contraceptives and immunization), and equity in Nigeria and other Sub-Saharan African countries as described in the adapted analytical framework (figure 1). Twenty-five papers were reviewed with twenty published and five unpublished. Ten of the papers reported on quality, 11 reported on service utilisation and five reported on equity. All ten papers reported improvement in technical quality, but only one reported on client quality satisfaction. Seven of the 11 papers reported significant improvement in institutional delivery. All the five papers reported no improvement in equity.

Effect of PBF on Quality of Health Services

Preliminary results from the midterm review of pilots in Nigeria have shown some quality improvement particularly with regards to availability of drugs, infrastructure and human resources; overall, there is over 20% quality improvement and about 40% increase in ANC and maternity quality of service.[26–29] The perceived quality from clients (ex-post) regarding the attitude of health workers was however reported to be poor.[28] Similar findings were reported in Rwanda, Cameroon and Burundi where PBF improved the quality of MCH services but patients' dimension of quality was assessed to be poor.[30–34] In a study in Benin where peer review was used for quality assessment in the PBF design implemented in 5 districts showed increased in quality of care from 65.9% to 75.8%; average quality score for district hospitals increased from 33.2% to 84.2%; technical quality score increased from 63.1% to 89.8%; and user satisfaction rate increased from 21% to 42%.[35] Another PBF cohort study in Burundi showed improved mean quality performance scores in different service categories; care management 49% difference in difference (DD), outpatient care 21% DD, maternity 28% DD, and prenatal services 31% DD; no appreciable improvement was observed in the quality of family planning services and no improvement in the control group.[36] Malawian study observed no statistically significant effect of PBF intervention on women's perception of interpersonal relations with health workers as there were reported cases of disrespect, verbal abuse and neglect; however, the women reported improved health services provision, i.e. availability of drugs, equipment and supplies.[37]

Utilization of MCH Services

Preliminary report from the midline assessment of the Nigerian PBF showed positive trend in all indicators in the two States. There is a statistically significant increase in institutional delivery with a DD of 13% (p=0.01); there was a positive increase in the number of under-fives fully immunized with DD of 6% and modern contraceptives uptake by 8% DD but not statistically significant.[26] Impact evaluation of PBF in Burundi showed that the Probability of institutional delivery increased by

21 percentage in percentage (pp), p=0.000, ANC utilisation increased by 7pp (p=0.067), use of modern contraceptives increased by 5pp (p=0.002); however, no effect on childhood vaccination rate.[32] Another Burundian study showed 4pp increase in full vaccination of under-five children and institutional delivery, and uptake of TT among pregnant women by 10pp (p=0.000).[33] Similar improvement in result was obtained regarding institutional delivery in another pilot studies in Burundi.[38] Increased utilisation of ANC and institutional delivery as a result of the PBF project was recorded in some pilot districts In Rwanda.[30] However, one other study in same Rwanda reported no impact of PBF on a woman's probability of completing 4 ANC visits; but the same study showed the significant effect of PBF on institutional delivery with 21% increase from baseline and 7.5% increase in a number of pregnant women receiving TT. In the same study, the probability of a child 12-23 months fully immunised was not significant.[31]

An impact evaluation study of PBF in Cameroon showed no statistically significant impact on skilled delivery at birth and ANC attendance, but the uptake of TT and modern contraceptives was high and statistically significant (p=0.001).[34] PBF evaluation in Benin yielded mixed results in the implementing pilot districts: institutional deliveries increased from 33.5% to 87.7%, uptake of modern contraceptives improved by over 100% in one district but no appreciable increase in the other pilot district.[35] A study done in Mozambique showed ANC improvement by 153% and 83% respectively in the two regions implementing PBF.[39] Moderate improvement in utilisation of MCH following PBF in a pilot study in Burkina-Faso; ANC attendance increased by 27.7% DD, institutional 9.2%DD and postnatal care by 118.7% DD.[40]

Effect of PBF on Equity

The midterm review of the pilot study in Nigeria showed that PBF has no effect on the poor; in some health services such as institutional delivery, the gains in average uptake were driven by wealthier women. Those in rural areas complained of distance to facility, lack of transportation and high cost of services.[26,28]

Two different studies from Burundi on PBF showed no significant effect on equity; in one study, for instance, there was a significant increase in institutional delivery following PBF implementation, but that was only observed among the affluent population.[32,33] A study in northern Cameroon on the equity impact of targeting the poorest showed that there are challenges in service coverage for the poor; most indigent population in the region have difficulty accessing health services because of far distance to health facility, lack of transportation or even lack of knowledge about targeting benefits.[41] Another study on equity analysis of PBF in Rwanda showed no specific interaction between program effect and wealth status. According to the author, in a situation with high equity gap or low to sub-optimal MCH service utilisation, PBF will do little to alleviate disparities without complementary strategies targeted at the poor.[42]

DISCUSSION

The outcome of the midterm evaluation of the project yielded mixed results across most of the service indicators which is consistent with findings

in most LMIC as described by several authors.[15,32–34,40] In both pilot states, the quality of health services, mainly technical, has remarkably improved. The qualities of ANC and maternity services have improved in both states based on the quality assessment score.[27,28,43] However, client dimension of quality is reported to be poor similar to the findings in Burundi, Cameroon and Malawi.[32,34,37] Even though context matters when interpreting such findings, since the quality assessment tools and methods of assessment may differ. Client satisfaction, though could be highly subjective; poor client satisfaction may result from increased workload due to increased client flow and documentation. It may also be due to gaps in community participation in the project as earlier discussed. Community dimension of quality should be balanced with technical quality in order to improve utilization and coverage of health services.

PBF implementation has improved the utilisation of MCH services in the pilot states, particularly institutional delivery and under-five vaccination though much improvement was observed in Adamawa State. There was also an improvement in the utilisation of modern contraceptives. The observed gains in service uptake may be as a result of the community mobilisation and campaigns carried out by CHWs and the high incentives associated with these services; e.g., the average per capita per year is 2.99$, and 50% of the bonus earned are shared among health workers. Presence of certain International NGOs such as UNFPA, particularly in Adamawa State, may also influence the MCH service outcome. It could also be due to improvement in data management. Review of literature from other PBF studies in some African countries is consistent with the Nigerian findings with Institutional deliveries and under-five vaccination as the most remarkably accessed services.[32–34,38,40]. Other MCH services such as ANC, PNC, TT, and FP had inconsistent results from different studies even in the same country; most studies reported less significant improvement.[34,35,40] Although, some services might already have high baseline values which might explain the insignificant improvement. Lack of demand-side incentives and poor community engagement might also be the reason for the suboptimal improvement in other MCH services in Nigeria. Performance-based Financing effect on service delivery varied even within the same country even when similar study methodology was used as reported in Benin where two pilot Wards gave different findings just like the findings in Nigeria.[35,44] Institutional factors at the facility level may probably be responsible for such differences. Contextual factors that limited the effectiveness of PBF in improving MCH service outcome in Nigeria include user fees and high service cost, geographical barriers and attitude of health providers as found in other countries.[28,37]

The midterm evaluation of the PBF reveals that wealthier women were benefiting more from the MCH services provided through the primary care facilities than the poor.[26,28] As quality at the primary care level improves, the rich are more likely to patronise the services instead of going to the private facilities or public hospitals. The increased patronage of PHC by the rich is an opportunity for the government to introduce demand-side financing such as health insurance for cross-subsidization. The poor on the other hand still have to weigh the opportunity cost of seeking

care since services are not free and even where they are free, the cost of transportation (direct nonmedical cost) may be high. The significant improvement seen in service utilisation in pilot states is among the more affluent population similar to findings from Burundi where PBF significantly improved institutional delivery among the rich but with no significant change among the poor.[32,33] Apart from the cost of drugs and services, transportation and feeding cost are some of the limiting factors for the poor from accessing care: In some places, transportation is only available on market days. Health facilities, public and private, are usually located within the cities and in the wealthier districts. The poor therefore pay more to access services as compared to the rich.

Limitations of the Study: This review relied mainly on literatures, project documents such as the implementation manual, minutes of meetings and project reports for its analysis which may be biased. However, the documents were critically scrutinised before being used. Furthermore, there are only a few publications on PBF in Nigeria limiting contextual evidence of the program. Evidence from other African countries with similar context was however used. Also, the review is limited by selecting papers published only in English and by selecting publications from the year 2000 onward.

Conclusion: The PBF pilot implementation in the two states, introduced as a strategic intervention to address maternal and child health challenges in Nigeria, have demonstrated significant improvement in utilization of maternal and child health services in the implementing primary health care facilities. Overall, there was improvement in quality of services, especially technical quality. The intervention however could not demonstrate positive effect on equity due to high cost of accessing care (medical and nonmedical) and equitable distribution of Primary Health Care facilities. The program may therefore not achieve its overall objective of reducing the high maternal and child morbidity and mortality unless the key populations contributing to these outcomes are deliberately targeted with the health services. We therefore recommend as follows:

Government policy: Government should **c**ollaborate with partners to develop policy frameworks for demand-side incentives such as conditional cash transfer, community based insurance, fee exemption, transport voucher, etc., to ensure equitable access to health services and ensure sustainability of the project. A policy framework that will enable primary care facilities to operate based on the most suitable time according to community needs while also considering the ease of supervision by the authorities should also be developed. Pay more incentives for improvement in client quality dimension.

Service delivery: Majority of the populace resides in the rural areas where access to health service delivery is poor. In order to improve access so as to improve health, community based awareness on importance of health and treatment of illness with efficient linkages to primary health care is recommended. In addition, equitable distribution of primary health facilities that would help improve access is equally as important.

Research: Introduction of non-rewarded indicators into the project to monitor for perverse

effect of PBF and Implementation research should be carried out on the use of non-monetary incentives to motivate health workers to improve performance.

Contribution to knowledge

This review has shown that PHC facilities when functional with good quality services are highly patronised by the affluence in the society thereby increasing financial flow to the facilities. The study has also demonstrated that though PBF was designed to address maternal and child morbidity and mortality, it has failed to address the issue of equity which is one of the major determinants. It has also opened up areas of further research as mentioned in the recommendations above**.** Furthermore, there are dearth of publications on PBF from Nigeria this article could therefore serve as a reference material.

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