Impact of Waiving Out-Of-Pocket Access Fees on HIV Testing and Linkage Services in Rivers State, Nigeria.

Abstract

Introduction: The financial implications of accessing health services negatively impact end-users and result in the non-utilization of healthcare services in most resource-poor countries. Direct and indirect costs of access to HIV services impede the uptake and adherence to ART, thereby hindering viral suppression in these regions. Evidence showed that out-of-pocket user fee waivers effectively improve access to healthcare services and expand their utilization. The payment of out-of-pocket user fees to access HIV services in Rivers State affected linkage to ART and was consequently waived to increase uptake of HIV services. The study aimed to determine the waiver's impact on linkage to ART.

Methods: A descriptive trend study to determine the difference in linkage to ART services following the waiver of access fees using data collected from the HIV control program, Rivers State.

Findings: There was gradual increase in HTS_TST_POS after the implementation of the user fee waiver, the total HTS_TST_POS during the study period was 157,525; with a mean (IQR) of 1101.57 (107, 2061) HTS_TST_POS per week. The increase occurred between the third quarter of the year 2019 and the second quarter of the year 2021, after which a decline occurred. The waiver of the out-of-pocket payments policy was announced about week 8 of 2021, after which linkage to ART consistently tethered above 90%. The weekly mean (IQR) value of linkage to ART was 98.7% (76.6%,

105.9%); and ranged between 94% to 100% within yearly quarters; there was a 100% linkage to ART throughout the year 2021. The total number of persons currently on treatment increased from 21,914 to 173,212.

Conclusion: Although the evidence supporting the effectiveness of user fee waiver as an intervention is debatable, removing out-of-pocket payments to access HIV services was effective in Rivers State and significantly improved linkage to ART.

Keywords: Antiretroviral therapy, Linkage to ART, HIV, out-of-pocket payments, user fee waiver

Introduction

Highly active antiretroviral therapy (HAART) has proven to be highly effective in treating patients with HIV/AIDS by significantly reducing transmission and infectivity of the virus[1–3]; and to achieve these significant reductions in HIV incidence, peak levels of HIV testing, linkages to HIV care, uptake of antiretroviral therapy (ART), and sustained adherence to ART are mandatory[4]. However, there are several existing inhibitions to accessing, initiating, and retaining people living with HIV (PLHIV) in care. Some of the most prevalent barriers to care for (PLHIV) include long travel for care [5][6], personal financial constraints that may be associated with a lack of employment opportunities for PLHIV in both urban and rural areas [7], long waiting times at the clinic [8], inadequate supply of antiretroviral drugs [9], and payment of user fees to access HIV services [10]. Evidence indicated that direct and indirect financial costs of access to HIV services inhibited uptake and adherence to ART

irrespective of the country's Gross National Income [11–13]; likewise, adherence to ART is essential for viral load suppression [14]. It was also found that Out-of-pocket spending for outpatient HIV service visits in 2013, patients spent per outpatient visit an average of US$2.11 on medical expenses and user fees [15] and that people living with HIV in Nigeria spent an estimated average of US$0.87 per outpatient visit on medical expenses [16].

The policy brief of the Health Policy Plus report was more elaborate on user fee waiver, showing that these fees can potentially impact the health-seeking behaviour of people living with HIV [17]. The fees include allowable charges (like hospital registration fees, consultation fees etc.) and informal charges but hospital registration fees are reportedly the commonest user fee for patients seeking ART services and paid by patients to enter the HIV ward or to have a nurse place a patient's files in the respective queue and may be charged repeatedly for subsequent visits in the continuum of care [10]. The report also revealed that 25% of patients paid at least one direct user fee for HIV care services during their most recent visit to a healthcare facility, with the highest prevalence in Rivers State at 55%, and the average amount spent on direct user fees among patients who reported incurring a fee was 1,235 Nigerian Naira (NGN) (US$3.40) in the four participating States (Rivers State inclusive) in the study in Nigeria. Among a range of interventions, health Policy plus in disseminating the finding to the National Agency for the Control of AIDS and other key stakeholders, recommended the establishment of a policy eliminating user fees for HIV services and recognizing people living with HIV as vulnerable and requiring continuous care [18].

The removal of out-of-pocket payments, also known as user fees, is a recommended intervention in response to the financial burden faced by individuals in accessing healthcare services; and has proven to be effective in improving access to and maximizing the utilization of health-related services [19, 20]. User fees waiver increased utilization of facility-based malaria care by pregnant women in Sudan [21]; in five years, hospitals in Kano, Nigeria, recorded a 45% increase in institutional deliveries following free antenatal and maternity care [22]; in Sweden, increased attendance in mammogram screening was observed in women with the lowest income, and more risk factors for low attendance after removing the out-of-pocket fee [23].

The National HIV/AIDS Indicator Impact Survey (NAIIS) estimated in 2019 that the prevalence rate of HIV infection in Rivers State was 3.8%, with an estimated 210,082 persons living with HIV; approximately 79% of people living with HIV were also not on treatment. Rivers State was therefore classified as a high burden, low saturation priority state [24]. With an unemployment rate of 41.95% [25] and misery index of 79.37%, an identifiable problem with accessing HIV services was the payment of out-of-pocket user fees. These payments in registration, consultation, and sundry initial costs at the health facilities [25] represent a significant obstacle in the HIV continuum of care. That is, the steps or stages that people living with HIV go through from the diagnosis of HIV infection, linkage to HIV medical care, receipt of HIV medical care, retention in medical care, and achievement and maintenance of viral suppression [26]. In 2019, eliminating user fees for access to all direct HIV services was named a "minimum requirement" for Nigeria in the *Country Operational Plan 2019* [27].

Therefore, user fees for all PLHIVs were waived by the Rivers State government to facilitate the activities of the HIV Control Program in Rivers State. The waiver commenced in the third quarter of 2019 with the intent to reduce the financial constraints faced by persons who required access to HIV services and to encourage the uptake of ART [28]. Increased uptake of antiretroviral therapy (ART) is essential to achieving the UNAIDS 95-95-95 goals [29]; thus, an improved response to HIV testing services and linkage to care was expedient, especially in the absence of a functional state health insurance system.

The Surge for improved HIV coverage

The United States Centres for Disease Control and Prevention (CDC) engaged the Institute of Human Virology Nigeria (IHVN) to support the Rivers State Ministry of Health in closing the gaps in accessing HIV services, setting off the development of the Rivers ART Surge Project. The project commenced in April 2019 and was implemented in 117 health facilities across the twenty-three local government areas (LGAs) of Rivers State, emphasizing the seven focus LGAs having the highest prevalence rates. The project aimed to contribute significantly to achieving the UNAID 95-95-95 target goals through active case finding, linkage to Anti-Retroviral Therapy, retention in care, and viral load suppression. Measurable indicators of the project include Persons provided with HIV Testing Services, persons who tested positive, and persons living with HIV (PLHIV) who are placed on treatment [30].

The study objective was to determine the impact of waiving out-of-pocket user fees on linkage to ART.

Methods

Given the suboptimal linkage to ART observed early in the surge, high powered advocacy to the State government was conducted by a joint team comprising the State Ministry of Health and its supporting agency –the United States CDC (and their implementing partner – IHVN); the advocacy resulted in the removal of out-of-pocket payments for HIV services. The funding model used for the waiver was projected by budget estimation for facility reimbursement to accommodate the State TX_CURR (Treatment current – No of persons currently placed on ART) and an increase of about 30,000 Persons Living with HIV (PLHIVs) every successive quarter and subsequently to saturation level, given the active case finding. The Government of Rivers State accepted to fund the reimbursement bills and officially announced the policy on the 26th of June, 2019. Consequently, all PLHIV seeking to access HIV treatment services in all 117 supported facilities in the State were at liberty to access such services without demanding out-of-pocket payment for the facility registration fee, consultation fee, or any similar and sundry expense in that category. Orientation meetings were held with all ART facilities to understand the concept. Policy letters were issued to all sites describing the funding model and abolishing out-of-pocket expenses for PLHIVs accessing care in the State beginning from the third quarter of 2019.

A descriptive trend study, including a comparative aspect, was carried out to determine the effectiveness of the introduction waiver for out-of-pocket access fees for PLHIVs seeking to access treatment services and linkage to ART. The analysis was conducted between April 2019 and January 2022, covering 143 weeks. Data on the

total number of persons who tested positive for HIV and received their test results (HTS_TST_POS), persons who started on ART after a new diagnosis, and persons currently receiving ART treatment (TX_CURR) were collected from the State HIV Control program data repository. These data measured variables like the study outcome - linkage to ART.

Data Analysis

Summary statistics were used to describe data; means and interquartile range (IQR) were used to summarise continuous variables, and data was visualised using charts. The reporting period used weekly data. Outcome variables were aggregated and categorised into yearly quarters, and trend analysis was done to determine quarterly trends after the introduction of the intervention. HTS_TST_POS was reported as counts.

Linkage to ART was reported as a percentage and calculated as:

$$\frac{total\ persons\ started\ on\ ART\ after\ new\ diagnosis\ during\ reporting\ period}{total\ persons\ newly\ diagnosed\ with\ HIV\ during\ same\ period} \times 100$$

A T-test of independent samples was conducted to compare both HTS_TST_POS and linkage to ART for equal periods before and after the implementation of waivers for out-of-pocket payments during the surge. The null hypothesis stated there was no difference in means before and after removing out-of-pocket expenses. A p-value less than 0.05 was considered statistically significant. Cohen's D was calculated to determine the effect size of the hypothesized result.

Results

At the project's inception, the number of individuals who tested positive for HIV and received their test results (HTS_TST_POS) was 107, and linkage to ART was 76.6%. A progressive increase was observed from week eight onwards for HTS_TST_POS; the total HTS_TST_POS during the study period was 157,525, with a weekly mean (IQR) of 1101.57 (107, 2061). Linkage to ART also peaked in week eight at 105.9%, with a sharp decline in week eighty; the weekly mean (IQR) value was 98.7% (76.6%, 105.9%). Figure 1 is a graphical illustration of HTS_TST_POS and linkage to ART for the study period.

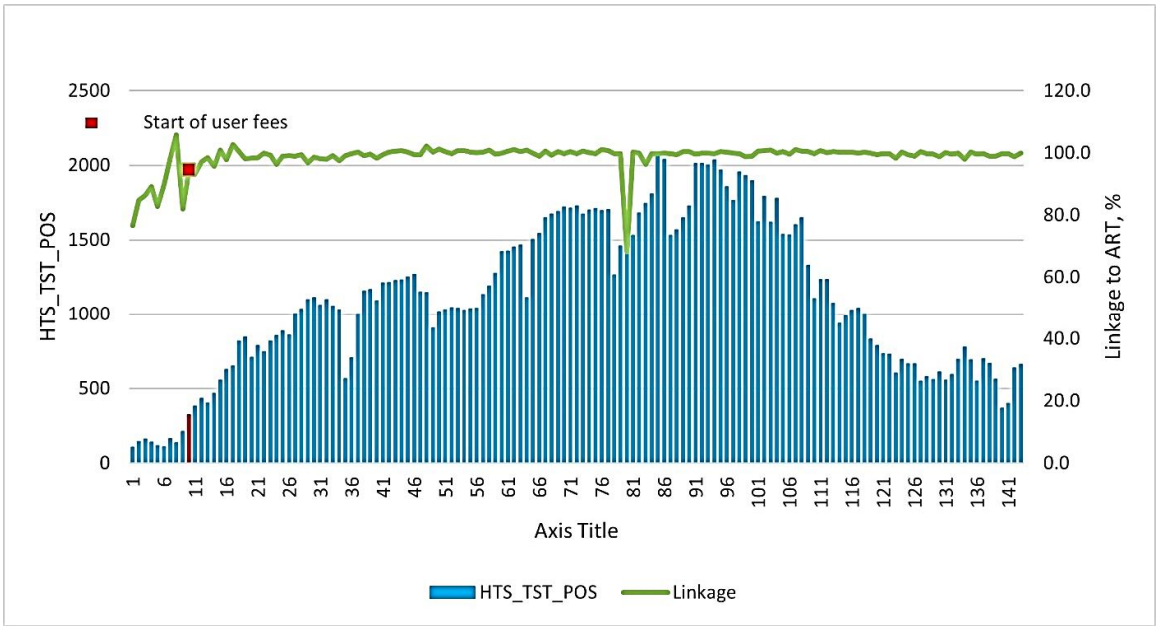

Figure 1. Weekly total –HTS_TST_POS and Linkage to ART

The waiver of the out-of-pocket payments policy was announced officially in June, but actual implementation began in week ten, after which linkage to ART consistently tethered above 90%. Linkage to ART has a gradual upward trend; a consistent upward shift –defined as seven points in a row either above or below the centreline— was visible from week thirty-five till the decline in week eight, after

which it continued. The trends chart showing a gradual upward movement of linkage to ART is depicted in Figure 2.

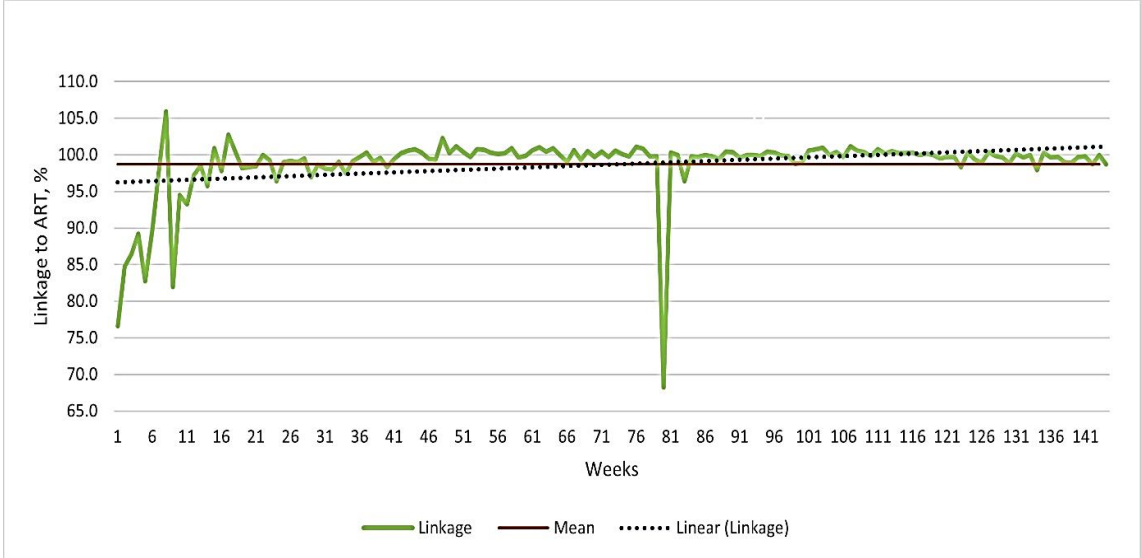

Figure 2. Chart showing linear trend and shifts in Linkage to ART

The third quarter of the year 2019 showed a substantial increment in HTS_TST_POS up until the second quarter of the year 2021, after which a sharp decline occurred. Linkage ranged between 94% to 100% within yearly quarters; there was also a 100% linkage to ART throughout the year 2021. The number of persons currently on treatment increased over time from 21,914 in the third quarter of 2019 to 173,212 in the last quarter of 2021. Figure 3 and 4 visualizes the quarterly trends of these variables.

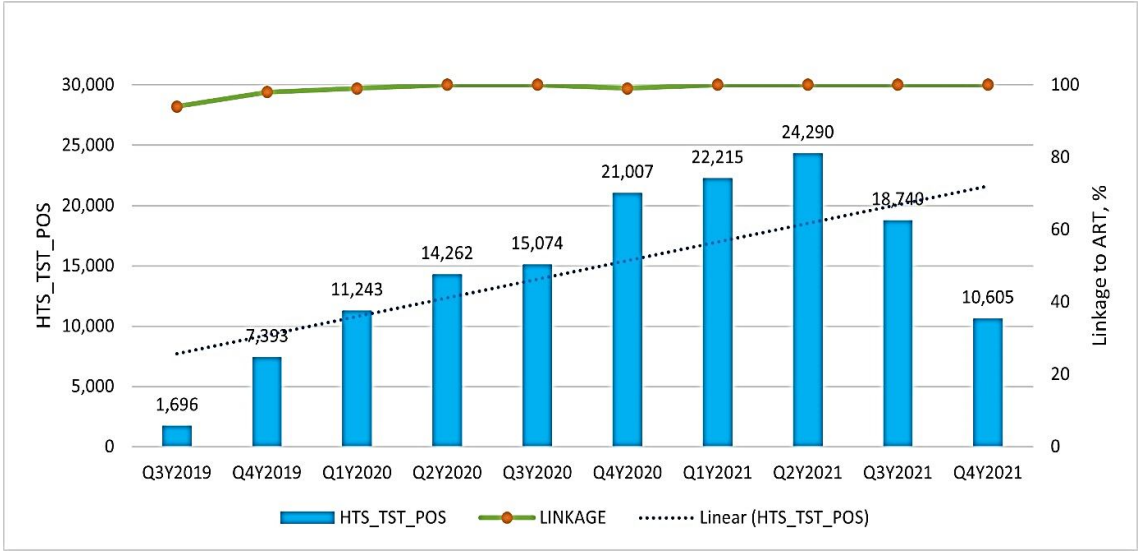

Figure 3. Quarterly total –HTS_TST_POS and Linkage to ART

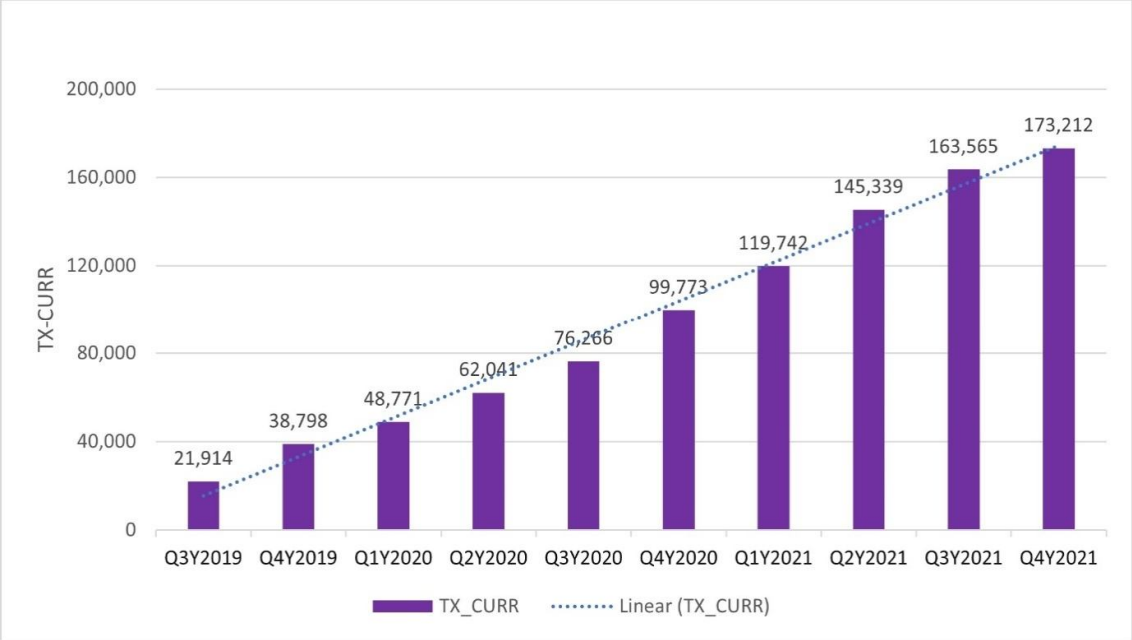

Figure 4. Quarterly total –Persons Currently on ART Treatment (TX_CURR)

Results of the t-test of independent samples indicated a significant difference in HTS_TST_POS before and after the removal of out-of-pocket payments (t = -6.9999, p-value = 0.0001; Cohen's D = 3.3); A Cohen's D of 3.3 indicated a large magnitude of difference. The difference in linkage to ART was also significant with a large

magnitude using same statistic (t= -3.0183, p-value = 0.0123; Cohen's D = 1.42). The full results of comparative statistics are presented in Table 1.

Table 1. Comparative analysis of variables before and after removal of out-of-pocket payments

Variable	n*	Mean	Std. Err.	95% CI**		t-test	p-value	Cohen's D
HTS_TST_POS	9	-374.89	53.557	-496.30	-253.48	-6.9999	0.0001	3.30
Linkage To ART	9	-9.5	3.147	-16.47	-2.528	-3.0183	0.0123	1.42

***Sample size per arm, combined = 18**

****CI – Confidence Interval**

Discussion

Findings from this study show improvement in linkage to ART even with corresponding improvements in HTS_TST_POS after the waiver of out-of-pocket payments for accessing HIV services; there was a "shift" in an upward trend in linkage to ART. A nine-week comparison of HTS_TST_POS and linkage to ART before and after the waiver of out-of-pocket payments showed a significant difference in both HTS_TST_POS and linkage to ART after the waiver of out-of-pocket payments; the difference shown by the waiver of out-of-pocket payments had a large effect on linkage to ART. Evidence from [10] was comparable to this study in both setting and outcome; it demonstrated a 66% decline in patient enrolment and a 75% decline in the number of ART doses dispensed after user fees were instituted. Watson et. al.[31] reported that the removal of user fees was associated with a 352% increase in hospital attendance, and new HIV diagnoses were reduced by 48% during the presence of user fees.

Out-of-pocket payments for healthcare in resource-limited settings have been controversial, with varied conclusions for and against its removal. Part of the intent

behind user fees was to increase the quality and coverage of healthcare services, increase revenue, and protect the poor from accessing healthcare services through exemptions [32]. It has been argued that user fees are not an effective form of financing because they have not fulfilled their stated intent or ensured equity of access; rather, they have delayed health-seeking practices and reduced overall utilization by the poor and vulnerable, increasing the number of preventable deaths. [33]. Evidence from Lagarde & Palmer [34] suggested that removing user fees can improve the utilization of certain healthcare services and have unintended consequences on the utilization of preventive services and service quality. In our study setting, removing user fees was adopted to eliminate the burden of out-of-pocket payment faced by PLHIVs seeking access to treatment services (linkage) and promoting service utilization [35]. Newly diagnosed PLHIVs were unable to secure ART services in the facilities due to user fees charged for service access at the hospital. This manifested as sub-optimal linkage to treatment in the early weeks of active case finding in the Rivers Surge Project (weeks 1- 7). Although the Rivers State Contributory Health Care Program Bill 2019 has been signed into law, it was yet to become operational at the time of policy formulation. The user fee waiver filled the gap in bridging the financial challenges of accessing treatment services in the absence of an operational strategy for universal healthcare coverage at the time of the policy formulation in the State. The user fee waiver improved linkage to treatment services, as seen in the results (see Table 1). The only drop-in linkage (below 95 per cent) observed after introducing the user fee waiver occurred in week

80 due to the "EndSARS protest" in Nigeria. During this time, the majority of healthcare facilities were closed [36].

The results of the t-test of independent samples indicated a significant difference in HTS_TST_POS before and after the removal of out-of-pocket payments (t = -6.9999, p-value = 0.0001; Cohen's D = 3.3). A Cohen's D of 3.3 indicated a large magnitude of difference. The difference in linkage to ART was also significant with a large magnitude using same statistic (t= -3.0183, p-value = 0.0123; Cohen's D = 1.42). This shows clearly, that the initial challenges of accessing treatment services were, to a great extent, solved by removing the financial barrier to accessing these services and aligns with the recommendation that elimination of "all formal and informal user fees in the public sector for access to all direct HIV services and related services" is a "minimum requirement" for Nigeria to optimize HIV service delivery under its Country Operational Plan 2019 [37]. Most especially, the removal of access fees in the State was implemented in supported public facilities and the private health facilities using a structured reimbursement scheme – *the Rivers State funding model for a user fee waiver.*

Similar to our study, research conducted by the World Health Organisation and World Bank proved that abolishing user fees yielded a favourable outcome for impoverished individuals [38]. Population-based data is useful in this study to demonstrate the positive impact of removing out-of-pocket payments for HIV services. Consequently, replicating the funding model used for the project in other regions and localities with similar characteristics would likely yield similar results. Consideration should be given to other factors like inadequate staffing and adverse

effects of medications, which could pose a barrier to efficient service delivery. A qualitative study at the individual level could provide additional insights into other risk factors associated with non-initiation of ART and non-retention in care that cannot be determined due to the ecological nature of this study. Similarly, retention in treatment is also affected by user fees and a variety of factors not controlled in this study. A more detailed comparative analysis may be necessary to elucidate the benefit of waivers for assessing retention.

Conclusion

Although the evidence supporting user fee waiver is debatable, removing out-of-pocket payments positively impacted access to HIV services and improved linkage to ART significantly; therefore, its adoption was effective in Rivers State. It is recommended for localities where out-of-pocket expenses hinder access and optimisation of health services, especially where universal health coverage is yet to be made operational.

Ethics Approval

Permissions for publication were sought and received from the Rivers State Ministry of Health.

Data Availability Statement

Data is available upon reasonable request from the Rivers State Ministry of Health.

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