

Impact of Accompanied Referral and Effective Counseling on Enrolment And Linkage to ART of Newly Identified HIV Positive Clients Toward Achieving Epidemic Control in South-Western Nigeria

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Abstract—Background: Very high rates of late or no ART initiation remains a persistent challenge to the achievement of PEPFAR 95-95-95 targets despite new NAHIS report stating prevalence of HIV in Nigeria as 1.5%. This study assessed the impact of accompanied referral (AR) and effective counseling (EC) on enrolment and ART treatment commencement of newly diagnosed HIV positive patients.

Methods: This study is a Quasi- experimental and analyzed routine program data on linkage from October 2017 – October 2019 for 45 health facilities in two States in South-West Nigeria. The first 6 months (Q1 and Q2 FY18) had no intervention while accompanied referral (AR) was implemented in Q3 and Q4 FY18. EC was implemented with AR in Q1&Q2 FY19 and was followed up till Q3 and Q4 FY19. Data analysis was done using SPSS and significance fixed at $P < 0.05$

Results: A total of 6114 newly identified HIV-positive clients were identified; mean age was 35.7 ± 13.9 and 31.5% were in the 30-39 years age bracket. Index Testing contributed 28.7% of the HIV positive Clients identified. Percentage Enrolment in Q1 and Q2FY18 increased from 65.8% and 65.6% respectively to 89.9% and 83.8% in Q3 and Q4 FY18. This increased to 99.6% in Q1FY19, 100% in Q2, 99.7% in Q3 and 99.9% in Q4FY19. Percentage linkage to ART in Q1 and Q2FY18 increased from 61.9% and 65.6% respectively to 85.4% and 75.7% in Q3 and Q4 FY18. This increased to 98.8% in Q1FY19, 99.5% in Q2, 99.7% in Q3 and 99.2% in Q4FY19.

Conclusion: AR coupled with EC had the best impact on enrolment, initiation on ART, time to enrolment and initiation.

Keywords – enrolment; Linkage; treatment; referral

I. INTRODUCTION

For the first time, the achievement of PEPFAR 95-95-95 targets looked in sight when NAHIS reported the current prevalence of HIV among adult in Nigeria to be 1.5% and estimated that only 1.9million people are living with HIV as against the previous estimates [1]. This may be due to extraordinary scale up of HIV prevention, care and treatment services in Nigeria and other Sub Saharan Africa countries over the past decade. Despite this progress, efforts to achieve the second 95 have been hampered by persistent challenges with linkage to care (LTC), the pathway from HIV diagnosis to initial engagement with HIV care and treatment. In spite of the integration of HTC with other health services, linkages between the various points of diagnosis (voluntary testing and counselling, provider-initiated testing and counselling, prevention of mother-to-child transmission of HIV [PMTCT], early infant diagnosis [EID], tuberculosis [TB] clinics, etc.) and enrolment into care, treatment, and support

services are poor [2]. Many PLHIV are lost at every step along the continuum of care, particularly in the period between HIV diagnosis and initiation of ART. This remains a persistent challenge to meeting the second 95 and still hinders the optimization of the treatment and prevention benefits of ART and the overall effectiveness of HIV programs [3]. Linkage to care is crucial to harnessing the potential of ART Immediate treatment can significantly improve health outcomes among people living with HIV, and may greatly reduce onward transmission [4]. The World Health Organization (WHO) recommends rapid referral be provided as early as the day of diagnosis, unless there are clinical reasons to delay treatment. Poor linkage has been identified as a contributory factor to late enrolment into HIV care and treatment. Clients who present late for HIV care and treatment miss the opportunity for timely initiation of prophylaxis against opportunistic infections; they may experience more rapid disease progression, are more likely to transmit HIV to a sexual partner, and face a greater likelihood of dying as well as accelerate disease progression and lead to an increased rate of HIV transmission within the community [5].

The need for efficient engagement in HIV care is more evident than ever because of the expansion of earlier ART initiation and the shift towards ‘Test and Treat’. In 2014, UNAIDS proposed the 90-90-90 targets which PEPFAR has shifted to 95-95-95 i.e., 95% of PLHIV will know their HIV status, 95% of PLHIV who know their HIV status will receive HIV treatment, and 95% of PLHIV on ART should be virally suppressed. As part of the move to reach the second 95 and accelerate HIV prevention, treatment, care, and support, strong linkages to care and treatment are needed for PLHIV to receive available services in a timely manner [2]. Interventions to improve linkage to and retention in care can target structural, biomedical, and/or behavioral barriers reported by patients. To successfully link to care, persons living with HIV must negotiate a complex series of processes from HIV diagnosis through initial engagement with HIV care systems and providers [6]. Two key intervention strategies previously mentioned are accompanied referral from HIV testing points to the treatment centres for enrolment and initiation on treatment as well as quality pre and post-test counseling despite the limited counseling time in the era of “test and treat”.

Pre and Post-test counseling has long been a cornerstone of HTS. However, many existing practices for post-test counseling provide HIV-related information that may only be tangentially related to LTC. For example, many post-test counseling guidelines have historically emphasized healthy lifestyle practices and prevention of HIV transmission through condom use or status disclosure. Until very recently, less attention has been paid to LTC, immediate ART initiation, and messages around achieving an undetectable viral load (e.g., undetectable = untransmittable). Optimal client-centered counseling communication and application of health belief and transtheoretical health behavior models has been suggested to help adapt existing post-test counseling approaches to help counselors better provide client-centered counseling and align the value of LTC with patient goals and values [6]. This will explicitly emphasize the importance of early LTC and guide a patient in overcoming specific barriers to LTC, and could be particularly important for asymptomatic patients or those in denial.

Accompanied referral services by patient escorts, usually case managers that escort newly identified HIV positive clients from testing points to the treatment centres for enrolment and initiation on treatment have been proved to also improve linkage to ART [6]. They provide treatment-navigation services including introducing facility staff, providing psychosocial counseling and support, and helping clients understand the locations, content, and sequence of clinical, laboratory, and pharmaceutical services. They ensure that a confirmatory test is conducted and that same-day ART initiation is done as quickly as possible.

This study thus aimed at assessing the impact of accompanied referral service alone on enrolment and ART initiation and also evaluate the impact of combined enhanced counseling and accompanied referral on enrollment and ART initiation of newly diagnosed HIV positive patients

II. SPECIFIC OBJECTIVES:

- To determine the impact of accompanied referral service on enrolment and initiation on ART.
- To determine the impact of combined intervention of escort service and enhanced counseling on enrolment and initiation on ART

III. STUDY HYPOTHESES

- 1) Escort service does not have significant effect on the time to enrolment.
- 2) Escort service does not have significant effect on the time to ART initiation.

IV. METHODS

This study is a prospective observational Quasi-experimental study that analyzed routine program data on linkage from October 2017 – October 2019 (FY18 and 19 of CDC/PEPFAR program) for 45 health facilities (15 Primary Health Centres, 21 Secondary Health facilities and 9 Tertiary Health facilities) in two South-Western states in Nigeria. The study population are all newly diagnosed HIV positive patients irrespective of their enrollment and ART initiation. The first 6 months were period of no intervention followed by the next 6 month where accompanied referral was introduced. This was followed by another period of six months where enhanced counseling was implemented along-

side accompanied referral and this was followed up till APR FY19. Routine program data was collected and collated over this period and analyzed to know the impact of the intervention. Relevant data such as age, sex, enrolment and ART status were obtained and triangulated from the HIV Daily worksheet, HTS registers, Enrolment and ART Registers. Confidentiality will be strictly maintained throughout the study period in a computerized form through adequate security provision regarding data storage on the computer system.

V. INCLUSION & EXCLUSION CRITERIA

The following sets of participants will be included in the study:

- ❖ Newly diagnosed HIV positive patients enrolled and commenced on ART.
- ❖ All sex and age range

VI. DESCRIPTION OF THE INTERVENTIONS

The intervention included two components

- (a) Training of expert clients (PLWHIV working at the facility as lay staff) and in best practices for patient linkage/follow-up, including provision of flip charts with concrete guidance on best practices for patient follow-up and counseling and engaging them as escort for accompanied referred at all testing points in the facilities. They accompany and link patients from diagnosis to care and support section where they enrol and start ART.
- (b) Counsellors were trained/or retrained on effective counselling skills. They are to ensure they spend adequate time with all newly identified HIV-positive clients counseling using a structured, strength-based, and motivational counseling approach that stressed the benefits of early ART initiation in achieving an undetectable viral load (e.g., undetectable = untransmittable). Counsellors are trained to apply inquiry and reflective feedback techniques to identify a client's immediate concerns. Specific well-characterized barriers that counsellors used to initiate discussion were internalized stigma, lack of HIV and/or treatment-related knowledge, perceived value of seeking HIV clinical care, context-specific costs associated with seeking HIV clinical care, and perceived sense of denial.

VII. STATISTICAL ANALYSIS

The data analysis will be done using statistical package for the social sciences (SPSS) for windows version 23.0 software (SPSS Inc; Chicago, IL, USA). Frequency counts will be generated for all variables and statistical test of significance will be performed with chi-square test. Other data will be expressed as Mean \pm Standard Deviation and analysed with Analysis of Variance (ANOVA) while multiple comparisons will be done using Post Hoc Bonferonni test. Significance will be fixed at $P < 0.05$ and highly significance if $P < 0.01$.

VIII. RESULTS

- (A) *Socio-demographic data*

A total of 6114 clients were identified within the period being analysed. About one third (31.5%) were within the 30-39 age bracket followed by 21.8% that were within 40 – 49 years. More than half of them (68.4%) were female. Tertiary Health facilities were the largest contributor of the positive yields (53.1%) which was followed by secondary health centres (30.6%). More than a quarter of the positive were (28.7) from Index testing and about 25.6% of the positives were from Adult Outpatient.

TABLE I: ENROLMENT OF CLIENT (N=6114)

Variable	N	%
Total PLHIV identified	6114	100
No Enrolled	5323	87
% Not Enrolled	791	13

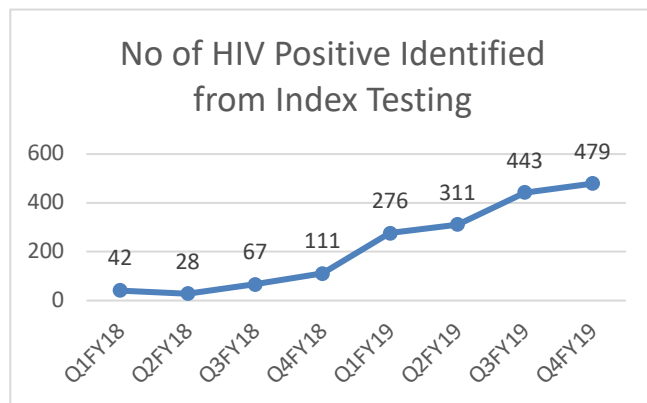


Fig 1: Number of HIV+ clients from index testing

(B) Enrolment in Care and ART Initiation

Percentage Enrolment in Q1 and Q2FY18 was 65.8% and 65.6% respectively. This increased to 89.9% and 83.8% in Q3 and Q4 FY18 after the introduction of accompanied referral. With intervention on counseling, it increased to 99.6% in Q1FY19, 100% in Q2, 99.7% in Q3 and 99.9% in Q4FY19.

Percentage linkage to ART in Q1 and Q2FY18 was 61.9% and 65.6% respectively. This increased to 85.4% and 75.7% in Q3 and Q4 FY18 after the introduction of accompanied referral. With intervention on counseling, it increased to 98.8% in Q1FY19, 99.5% in Q2, 99.7% in Q3 and 99.2% in Q4FY19.

(C) Reasons for Non-enrolment

Out of the 791 clients that did not enroll overall, 30.1 % of the clients denial their HIV status while 28.9% refused enrolment, 14% died, 11.3% could not afford cost of Pre-ART lab services and 11.1% referred to another facility. In Quarter 1 FY18, 104 clients refused enrolment while 72, 4, 46, 1, 0, 1, 1 clients refused enrolment in Q2FY18, Q3FY18, Q4FY18, Q1FY19, Q2FY19, Q3FY19, and Q4FY19 respectively. On the other hand 74 clients denied their HIV status in Quarter 1 FY18 while 75, 84, 4, 1, 0, 0, 0

TABLE II: CHARACTERISTICS OF HIV CLIENTS ENROLLED WITHIN THE STUDY PERIOD (N=6114)

Variable	N	%
Age Bracket		
0-9years	312	5.1
10-19years	202	3.3
20-29years	1338	21.9
30-39years	1927	31.5
40-49years	1334	21.8
50-59years	675	11.0
60-69years	254	4.2
70-79years	56	.9
80-89years	14	.2
Sex		
Female	4183	68.4
Male	1931	31.6
Level of Health Facility		
Primary Health Centres	999	16.3
Secondary Health Centres	1871	30.6
Tertiary Health Centres	3244	53.1
Total Number of PLHIV identified in each Service Delivery Points		
Adult Inpatient	607	9.9
Adult Outpatient	1566	25.6
ANC/PMTCT	423	6.9
Blood Bank	173	2.8
Index Testing	1757	28.7
Pediatric Outpatient	100	1.6
STI Clinic	73	1.2
TB DOT	369	6.0
VCT	1046	17.1

client refused enrolment in Q2FY18, Q3FY18, Q4FY18, Q1FY19, Q2FY19, Q3FY19, and Q4FY19 respectively.

(D) Quarterly time to Enrolment and Initiation on ART

Mean time to enrolment decreased from 4.6 days in Q1 FY18 to 2.9 days, 2.2 days, 1.9 days, 0.4 days, 0.2 days, 0.2 days and 0.1 days in Q2FY18, Q3FY18, Q4FY18, Q1FY19, Q2FY19, Q3FY19 and Q4FY19 respectively.

Mean time to initiation on ART also decreased from 6.1 days in Q1 FY18 to 3.9 days, 2.4 days, 2.6 days, 0.6 days, 0.4 days, 0.3 days and 0.3 days in Q2FY18, Q3FY18, Q4FY18, Q1FY19, Q2FY19, Q3FY19, Q4FY19 respectively.

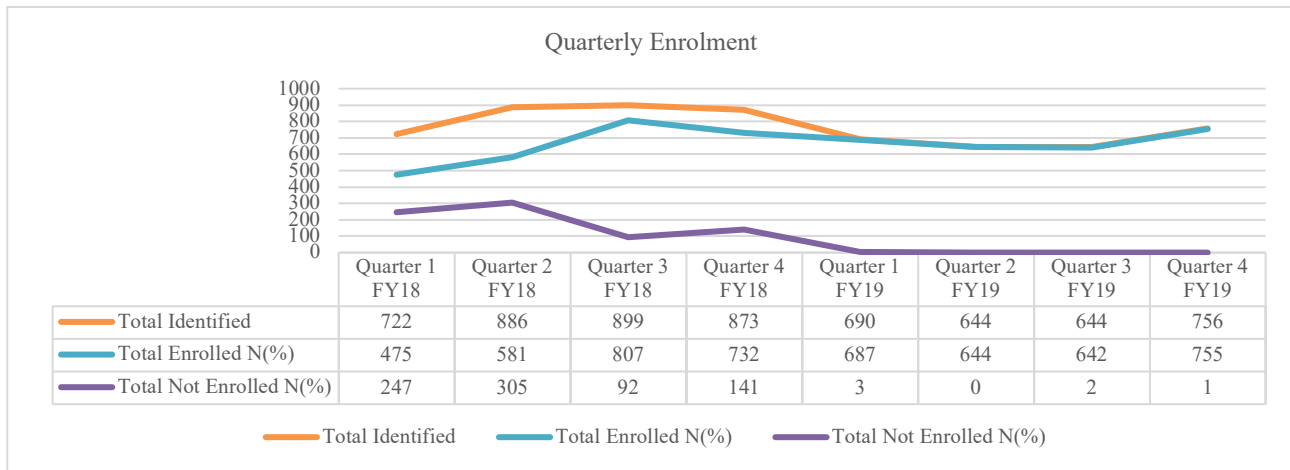


Fig 2: Quarterly Enrolment into Care

TABLE III: QUARTERLY COMPARISON OF ENROLMENT AND INITIATION ON ART

	Total Identified	Total Enrolled N(%)	Total Not Enrolled N(%)	Total Started on ART N(%)	Total Not Started on ART N(%)
Q1 FY18	722	475(65.8)	247(34.2)	447(61.9)	275(38.1)
Q2 FY18	886	581(65.6)	305(34.4)	581(65.6)	305(34.4)
Q3 FY18	899	807(89.8)	92(10.2)	768(85.4)	131(14.6)
Q4 FY18	873	732(83.8)	141(16.2)	661(75.7)	212(24.3)
Q1 FY19	690	687(99.6)	3(0.4)	682(98.8)	8(1.2)
Q2 FY19	644	644(100)	0(0)	641(99.5)	3(0.5)
Q3 FY19	644	642(99.7)	2(0.3)	642(99.7)	2(0.3)
Q4 FY19	756	755(99.9)	1(0.1)	750(99.2)	6(0.8)

implemented when compared with Q1 and Q2 where enrolment and linkage were very poor which is similar to what was reported by [3]. Despite the significant increase, it was not yet at the required target of at least 95%. As observed in the analysis, while enrolment increased during this period, a large chunk of the clients still refused enrolment while some that even enrolled did not eventually start ART, the major reason for this being denial of their HIV status. In FY19 however, when accompanied referral was combined with improved and effective counseling, enrolment and linkage skyrocketed even reaching the 100% mark and stabilized to 99%. Also, the number and proportion of clients that refused enrolment, denied their status significantly reduced to the barest minimum. This is in line with [3], who recognized that multi-component approaches / interventions that composed of several practical, evidence-based interventions that simultaneously target the multiple and recurrent barriers that patients face as they navigate across the HIV care continuum are needed to maximize individual and population health benefits of HIV programs.

IX. DISCUSSION

A total of 6114 clients were identified within the period being analysed and more than two third were female. This may represent unmet needs of men and the perceived poor health seeking behaviour of men. Understanding the perspectives of men is critical to tailoring health communication and clinical services to meet the needs of men. Support of men's testing and care out- side of facilities in spaces considered more suitable by men may help to improve engagement of men in care such as community-centered HIV testing and ART delivery and other differentiated models of care [7]. Tertiary Health facilities were the largest contributor of the positive yields (53.1%) which was followed by secondary health centres (30.6%). More than a quarter of the positive were (28.7) from Index testing and about 25.6% of the positives were from Adult Outpatient.

Our study showed that the implementation of accompanied referral had significant effect on enrolment and eventual start of ART. While the overall linkage was 87%, significant improvement in enrolment and linkage was seen in Q3 and Q4 FY18 when accompanied referral was

TABLE IV: REASONS FOR NON- ENROLMENT

Quarter	Cost of Pre-ART lab services	Denial of status	Relocation to another region	Refused Enrolment	Dead	Referred to another facility
Q1 FY18 (N=247)	0	74	0	104	41	28
Q2 FY18 (N=305)	62	75	15	72	49	32
Q3 FY18 (N=92)	3	84	1	4	0	0
Q4 FY18 (N=141)	23	4	20	46	21	27
Q1 FY19 (N=3)	0	1	0	1	0	1
Q2 FY19 (N=0)	0	0	0	0	0	0
Q3 FY19 (N=2)	1	0	0	1	0	0
Q4 FY19 (N=1)	0	0	0	1	0	0
Total (791)	89(11.3%)	238(30.1%)	36(4.6%)	229(28.9%)	111(14.0%)	88(11.1%)

TABLE V: REASONS FOR NOT INITIATING ART FOR CLIENTS ENROLLED

Quarter	Cost of Pre-ART lab services	Denial of status	Relocation to another region	Refused Enrolment	Dead	Referred to another facility	Undergoing Adherence Counseling
Q1 FY18 (N=28)	26	0	2	0	0	0	0
Q2 FY18 (N=0)	0	0	0	0	0	0	0
Q3 FY18 (N=39)	18	10	0	0	0	0	11
Q4 FY18 (N=71)	0	19	0	0	20	14	18
Q1 FY19 (N=5)	0	0	0	0	5	0	0
Q2 FY19 (N=3)	0	0	0	0	3	0	0
Q3 FY19 (N=0)	0	0	0	0	0	0	0
Q4 FY19 (N=6)	0	1	0	1	2	2	0
Total (152)	44	30	2	1	30	16	29

Counseling continues to form a critical gateway to care, treatment and support for persons newly diagnosed with HIV especially in the era of test and treat [8]. Ample time must be spent counseling and providing information relating to benefits of immediate ART initiation, adherence to medication, achieving an undetectable viral load (e.g., undetectable = untransmittable), healthy lifestyle practices and prevention of HIV transmission through condom use or status disclosure. Counselors are therefore encouraged to spend enough time with newly identified HIV- positive clients using a structured, strength-based, and motivational counseling approach can assist clients in enunciating their goals, describe pathways towards achieving the as well as identify potential challenges to consider along those pathways. This will undoubtedly enable clients to consider specific barriers and embrace a specific care-seeking plan. Additionally, accompanied referral intervention alone also significantly decreased the average time to enrolment from 4.6± 11.7 in Quarter one to 1.9days ± 4.9 in Q4 FY18. Upon combination with effective counseling, the average time to enrolment was reduced to 0.1 days ± 0.6. Average time to initiation was also significantly reduced from 6.1days ± 15.6 to 0.3± 2.1 when accompanied referral intervention was combined with effective counseling. This reduction in time to enrolment and initiation will ensure early initiation of ART which will eventually decrease the substantial and

preventable morbidity and mortality persist among people living with HIV morbidity and mortality, as well as reduces risk of HIV transmission [9], [10]. This was evident in this study as the number of new HIV positive clients that died reduced over the quarters. The benefits of early HIV care and treatment for both individual health reasons, and population benefits through treatment as prevention cannot be overemphasized.

There was a steady increase the proportion of HIV positive clients identified from index testing which showed progress towards testing efficiency through strategic testing of elicited partners of identified HIV-positive clients. This high-risk group constitutes a critical mass that must be reached in order to attain HIV epidemic control. Strategically identifying and offering HTS to sexual partners of index PLHIVs is important to reduce new infection rates toward ending HIV/AIDS in Nigeria.

X. CONCLUSION

Successful LTC requires a patient to navigate a series of processes, from testing HIV positive through post-test counseling, laboratory investigations, care transfer, clinical evaluation and ART initiation. This study has showed that implementing accompanied referral with effective counseling can significantly improve enrolment and linkage as well as reduce time to initiation on ART. Given the success of this intervention in improving enrolment and linkage of newly diagnosed HIV-positive patient and its potentials for its sustainability, this approach should be considered for scale-up in similar settings in Nigeria where there are challenges with linkage.

XI. RECOMMENDATIONS

The study findings lead to several recommendations for improving enrolment and early entry in care and treatment.

- Healthcare provider counselling should emphasize the importance of early entry in care. More time should be spent talking to newly diagnosed HIV-positive clients to provide individualized, proper counselling and education. Despite the work load and time constraint, Clients need to be thoroughly informed of their treatment options, and the consequences of each, so that they are aware of the effects of late enrolment in care especially during the first contact.
- There is a need to identify innovative ways to engage males in testing and treatment by understanding the perceptions of men and how to meet their needs. Communication and community-based interventions that specifically incorporate gender norms and gender roles may also more effectively reach men and potentially shift their negative perceptions to care of their health.

XI. ACKNOWLEDGEMENTS

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XII. FINANCIAL & NON-FINANCIAL COMPETING INTEREST

The authors declare no financial or non-financial competing interest.

XIII. CONFLICT OF INTEREST

Authors declare they have no conflict of interest.

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